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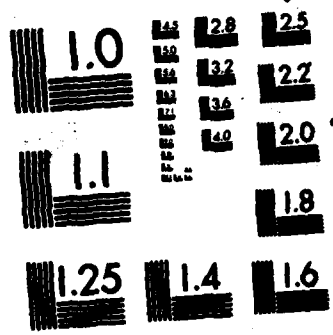
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Naval Ocean Research and Development Activity

NSTL, Mississippi 39529 NORDA Report 92 April 1985

Atlas of Sognefjord Sections

1900-1970

Final Report

K.D. Saunders
D.A. Burns
Oceanography Division
Ocean Science Directorate

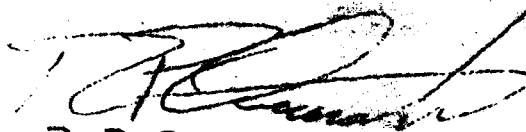
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Forword

The systematic study of the physical of the Norwegian Sea effectively began with the work of Helland-Hansen and Nansen. During the years 1900-1905, they repeatedly took hydrographic measurements along a section running in a northwesterly direction from the mouth of Sognefjord. This section, which spans the Norwegian Atlantic Current, is commonly known as the "Sognefjord Section." Since the initial study of Helland-Hansen and Nansen, other investigators have repeated the section at irregular intervals.

This data, collected along and in the vicinity of the Sognefjord section during 1900-1970, were assembled and edited. This report presents these data in a useful format.



R. P. Onorati, Captain, USN
Commanding Officer, NORDA

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FIELD	GROUP	SUB. GR.														
19. ABSTRACT (Continue on reverse if necessary and identify by block number) A hydrographic section in the southern Norwegian Sea, which extends in a northwesterly direction from the entrance to Sognefjord (the "Sognefjord Section"), has been repeated at irregular intervals from 1900 to 1970. This atlas presents the temperature and salinity data obtained during that period. For each of 55 sections, the station positions, the temperature-salinity diagrams, and the contour plots of temperature and salinity are presented.																
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Acknowledgments

I would like to thank my colleagues at the University in Bergen for their kindness and support during the initial stages in preparing this atlas, especially Professors Mosby and Mork. Herr Leinebø of the Fiskeridirektorat/Havforskning sinstitut t was most helpful in providing a large quantity of the data used in this report. Numerous conversations with Dr. A. W. Green of NORDA contributed greatly to the approach taken in the data presentation. I would also like to thank Pat Carter, who plotted the data. This work was begun while one of the authors was supported by a NATO Fellowship and continued under the support of an NTNF Fellowship. We also wish to acknowledge the support of the Non-Acoustic ASW Oceanography Program (formerly the Ocean Measurement Program), Program Element 63704N, Dr. Rudolph Hollman, manager.

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Atlas of Sognefjord Sections 1900-1970

Introduction

Between 1900 and 1905, Helland-Hansen and Nansen (1909) conducted one of the most extensive studies of the physical oceanography of the Norwegian Sea. During this period they performed hydrographic measurements along a section that began near the entrance to Sognefjord and ran northwestward every May from 1901 to 1905. This section was named the "Sognefjord Section."

Since then, this section (or sections near it) has been repeated at irregular intervals. After the first intensive field study, from 1900 to 1905, no further sections were made until 1914. World War I prevented further studies, and no more sections were made until 1925. The Sognefjord section was repeated in 1925, 1927, 1928, 1929, 1932, 1934, 1935, and 1936. An 11-year hiatus was partly due to World War II. The sections were continued in 1947 and were made annually until 1953. They were continued annually from 1957 to 1962 but have since been sporadic.

These data have never been assembled and presented in a systematic manner. Most of the data from these repeated sections have been assembled and are presented in this atlas. The period covered is from 1900 to 1970.

Data sources

The early data from 1900 to 1904 were copied from Helland-Hansen and Nansen (1909), where they are listed in an appendix, and from the *Bulletin des resultats acquis pendant les courses periodiques*, Copenhagen, 1902 to 1904 (this later became the *Bulletin Trimesterel* and the earlier data may be found under that title), published by the ICES. The data from 1914 to 1953 came from the original data sheets of the Geofysisk Institutt, Universitetet i Bergen, with the exception of the 1935 and 1936 data, which had already been punched on computer cards and published (Mosby, 1966a, 1966b). The data from 1957 to 1962 has been published in the ICES Data Lists for those years, and these and other data were obtained in punched card format with the assistance of Herr Reidar Leinebø of the Norsk Fiskeridirektorat/Havforskningsinstitutt in Bergen.

Helland-Hansen (1934) described in great detail the Sognefjord sections from 1925 to 1929. These and the sections made between 1932 and 1949 were discussed by Scheldrup (1954). The data from 1935 and 1936 were discussed in detail by Mosby (1970), and the data from 1947-1953 were discussed in detail by Saelen (1959).

Data quality

All the data were taken by Nansen bottle casts. As such, the data quality is similar to other data taken during the early to mid-twentieth century. The temperatures are probably accurate to 0.01° to 0.02°C , and the salinities are estimated to have systematic errors of less than 0.02 ppt (Helland-Hansen, 1934). Between 1949 and 1963, the 95% confidence limit on titrations for salinity was 0.015 ppt (Leinebø, 1971). In August 1961, Mohr's method (titration) was replaced by an NIO salinometer at the Geofysisk Institutt (Mosby, 1964).

The depths of Nansen bottles were determined by comparing the reading of protected and unprotected reversing thermometers. Often, the depths were determined by reading the wire-out indicator on the winch. The wire angle was not often taken nor was the depth corrected by means of the unprotected thermometer. The usual practice was to use an unprotected thermometer only on the deepest bottle. Therefore, errors up to 20 m may be encountered. The only statement that can be made conservatively is that when errors do occur, they will appear as reported depths deeper than the true depths.

By far, the greatest source of error in these measurements is the ship's position. Until recently, the ship's position was determined by celestial navigation and dead-reckoning. Under good conditions (e.g., a calm sea, anchored ship, and clear weather), the accuracy of a sun fix taken by an experienced observer was on the same order as the LORAN-C fixes (Biskopshavn, private communication). However, in the Norwegian Sea, it is not uncommon to have the sky obscured by clouds for long periods. The following illustrates the amount of error that can occur under the conditions present during the collection of Sognefjord section data:

The lack of observations in the winter is mainly due to the very bad weather at sea, which generally makes it impossible to obtain trustworthy observations, and in any case makes the work very difficult. Moreover, when it is dark and stormy, the determination of one's position will in most instances be very doubtful. This was especially the case during the February cruise in 1903, when, one occasion it was impossible to decide whether Jan Mayen was actually visible from the ship (in the ice), or, according to the ship's journal was more than one hundred miles to the north. In November, 1903, when the investigations were being made on board the fishery steamboat ASK, the Faeroes were suddenly seen through the dark atmosphere; but according to our dead reckoning, the islands at the time were supposed to be some sixty miles to the south. As this November cruise, however, only occupied 10 days with the touch at the Faeroes to keep our bearings right, the positions of the stations on this cruise may be considered to be fairly trustworthy, the probable error not exceeding 20 miles at the most (Helland-Hansen and Nansen, 1909, p. 24).

After the summer of 1957, LORAN-C was used. The accuracy was assumed to be between 300 and 500 meters (Biskopshavn, private communication). From 1961 until at least 1974, Decca navigation was used, which provided 6 m accuracy along the baseline.

Data processing, interpolation, and plotting methods

The data were transcribed from the punched cards to disk and tape on the UNIVAC 1110 at the University of Bergen. The obvious errors in temperature and salinity were edited from the data set. The data were written to tape, and final processing was done on a VAX 11-750 at NORDA.

The sections were plotted using the contouring routine from the DISPLA plotting package. Before this routine could be employed, the data had to be registered to a uniform grid. The stations were first sorted for increasing longitude. The variable to be plotted was then interpolated at each station to a uniform grid in the vertical, and the variable at each standard vertical level was then interpolated to a uniform horizontal grid. Where no data were available for the deeper layers, a constant value of -1.0°C and 34.90 ppt was set at 1500 m. The bottom contour was obtained from the values punched on the cards if present, or estimated from bottom charts if not present

on the original data cards. The interpolation method used was a local cubic fit (Akima, 1972).

Because of the use of a historical value for the deeper waters, some of the contours in the very deep water are not representative of what we believe to be the true situation. Also, some of the bottom contours do not appear to be representative of the actual bottom. The data used were the best available, but the user of this atlas should be aware that errors may have been made in collecting or transcribing the data, and the deep temperature and salinity contours and the bottom contours should be used with caution.

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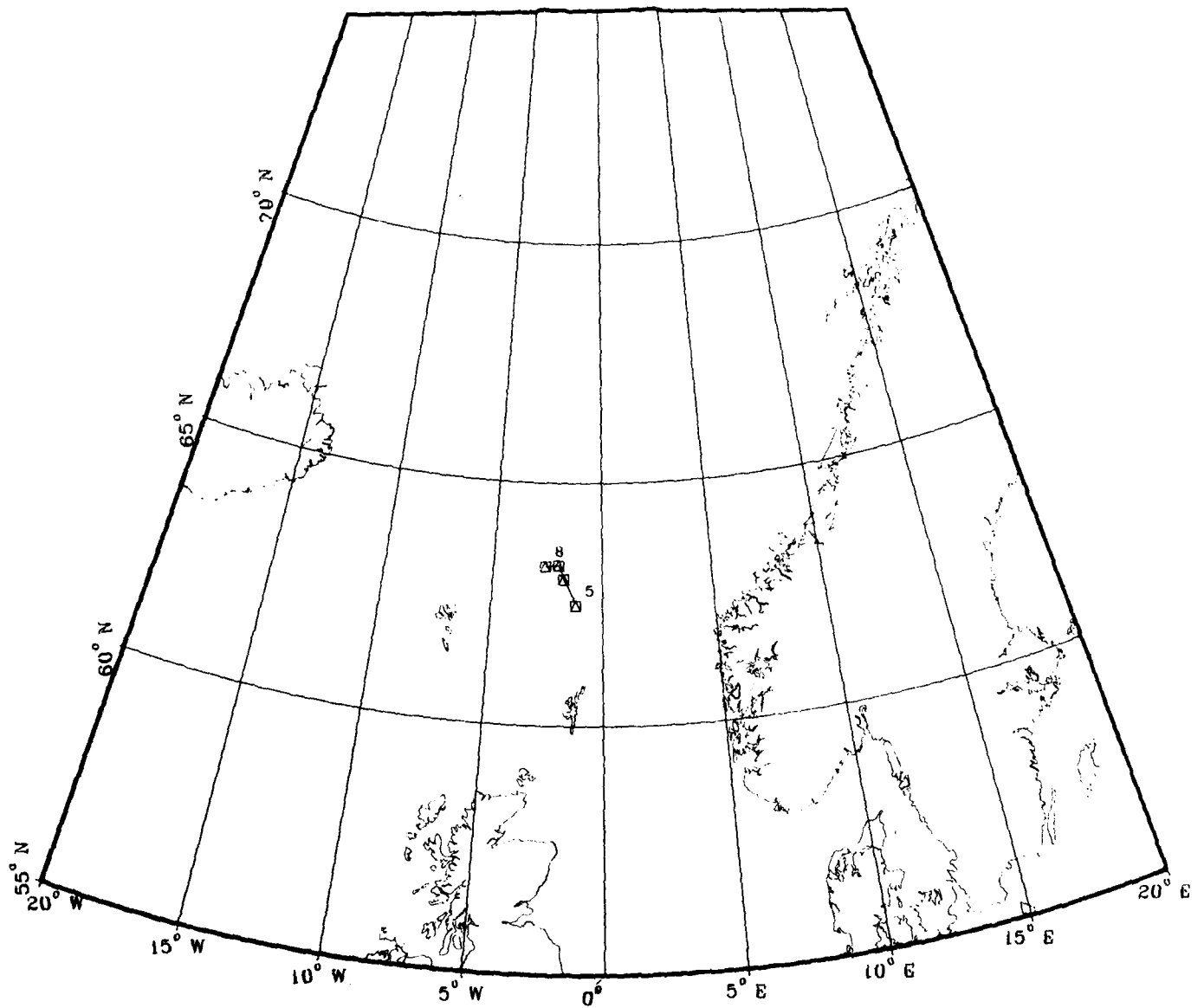


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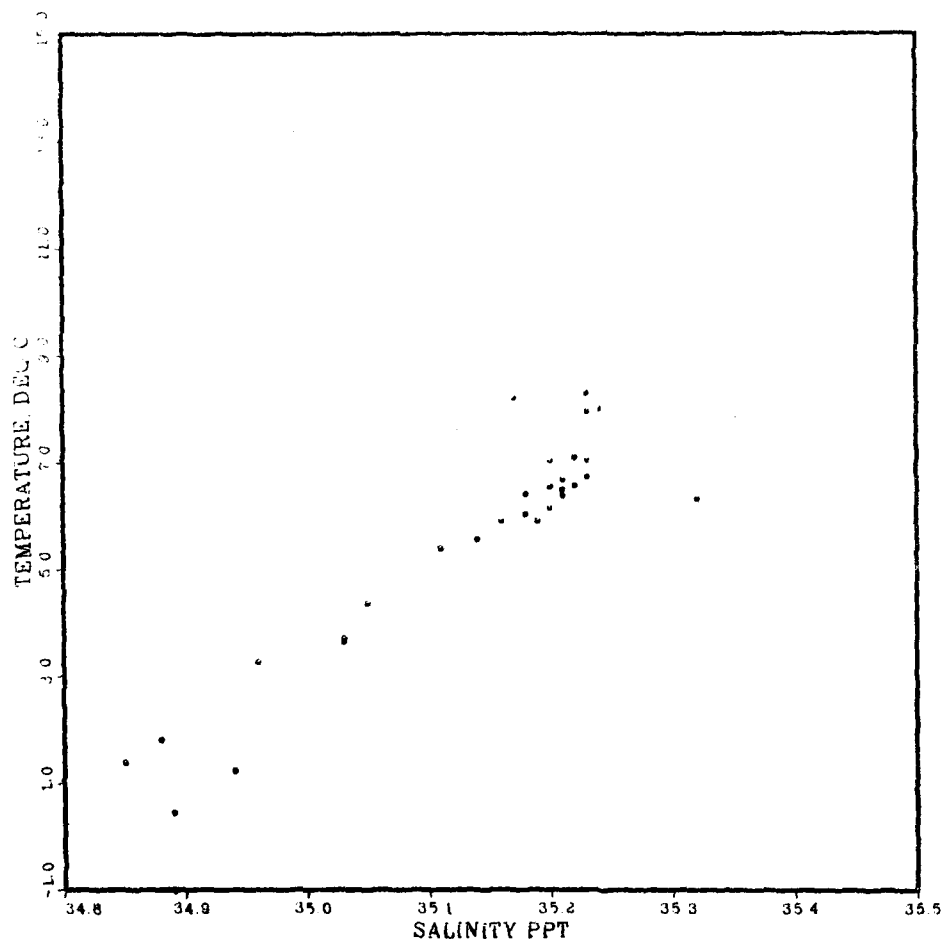


Figure 2. May 1900 temperature/salinity diagram.

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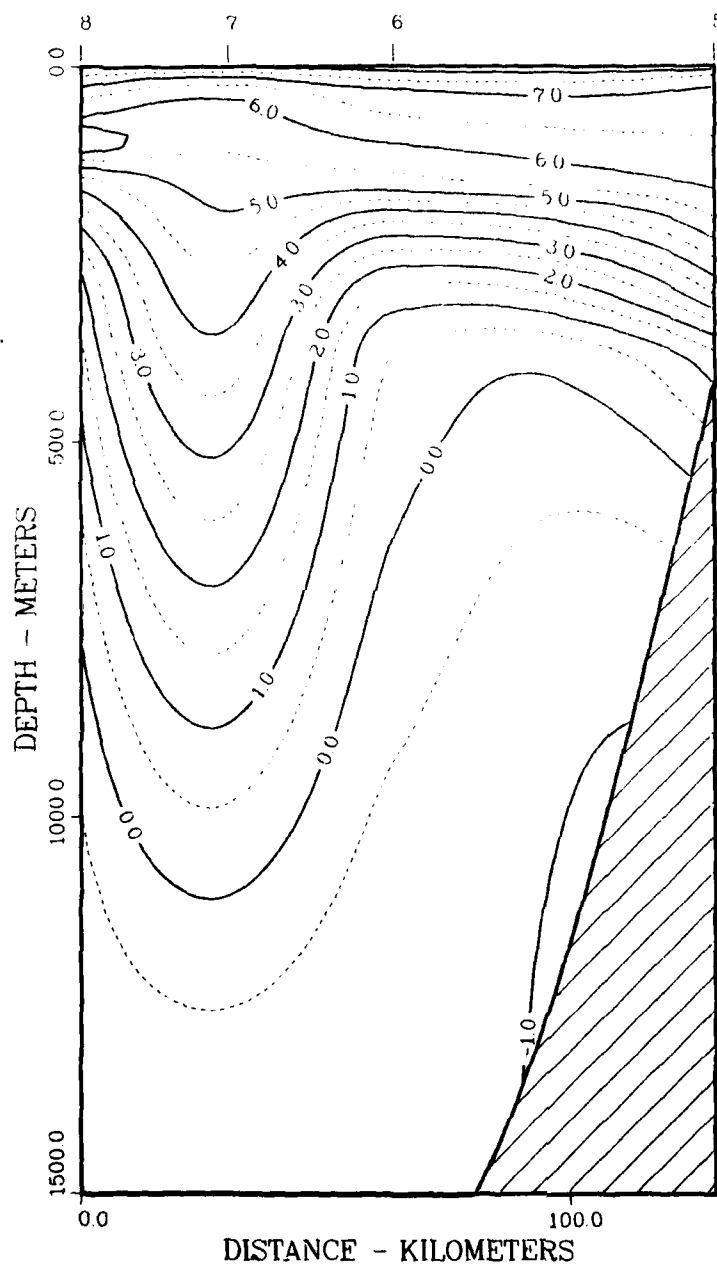


figure 3. May 1900 temperature section.

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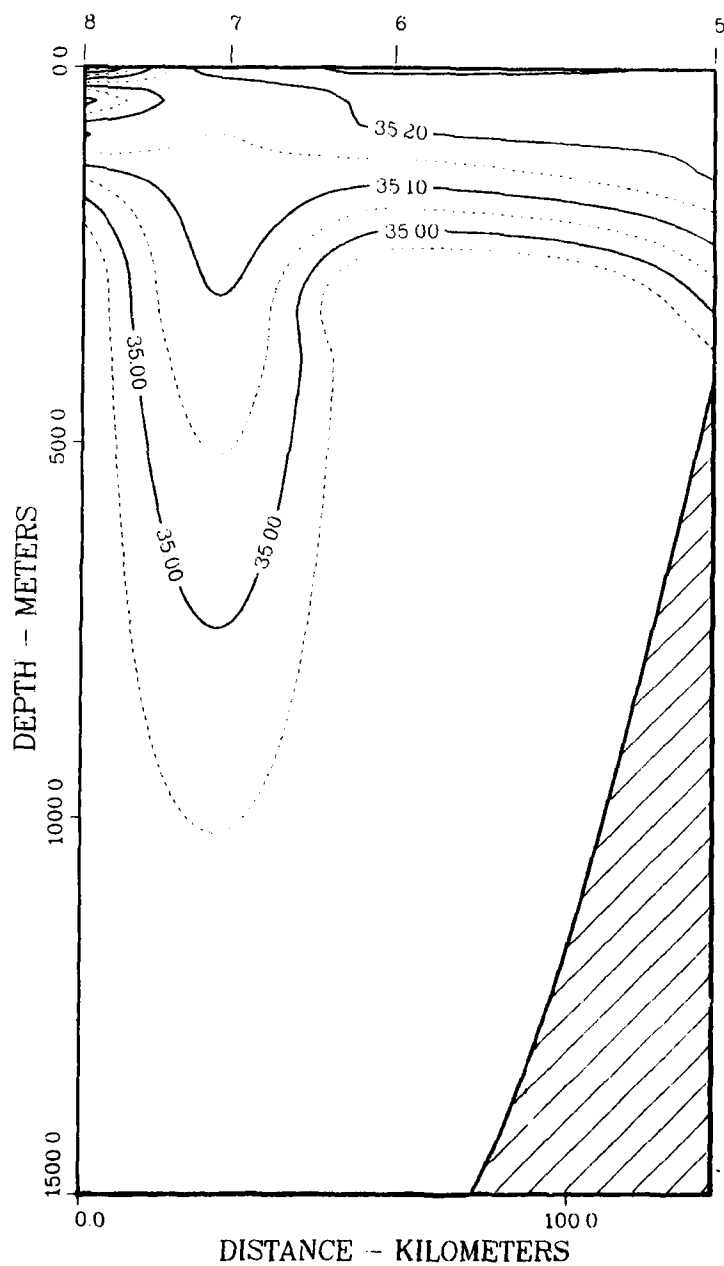


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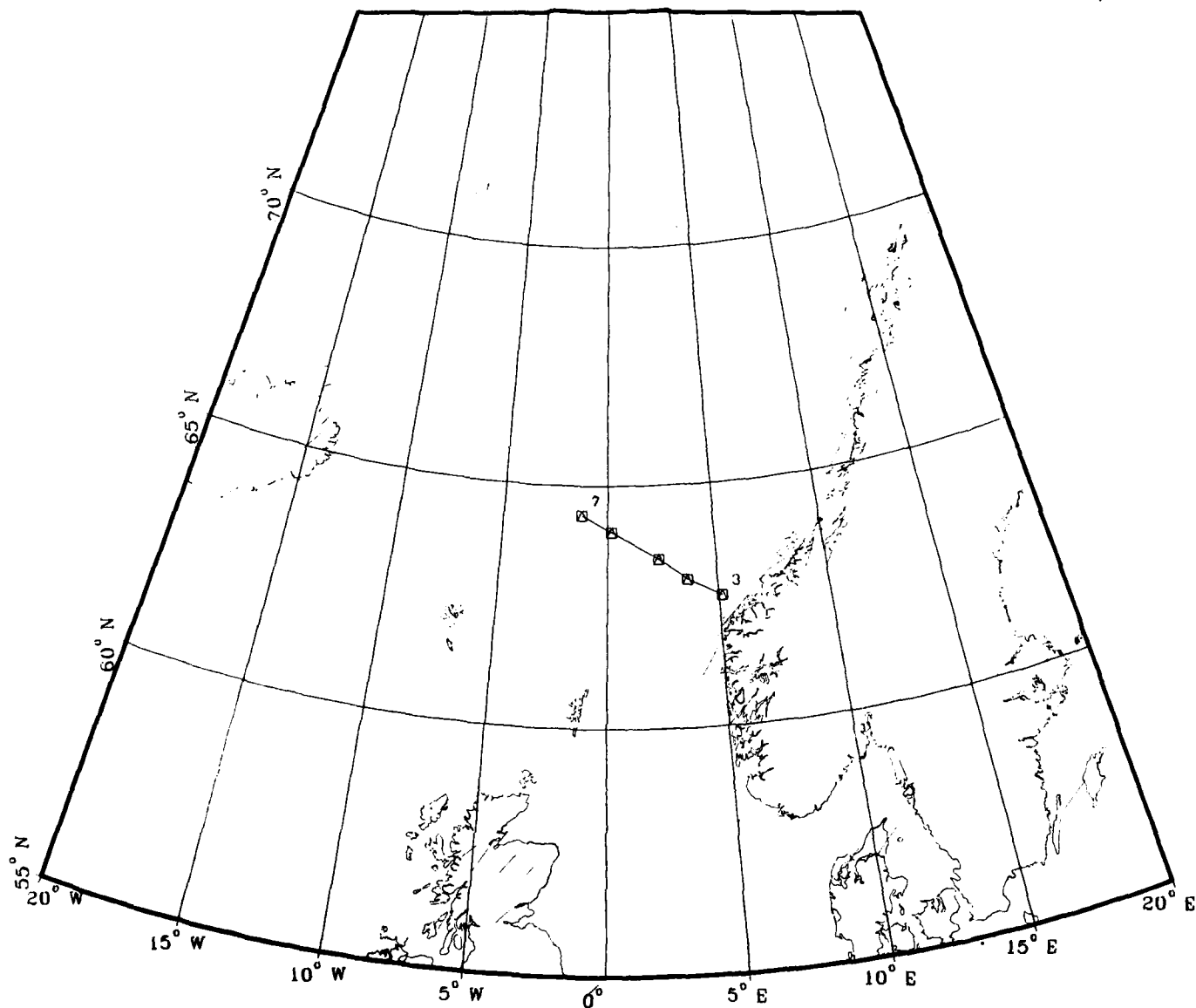


Figure 5. January 1901 station positions.

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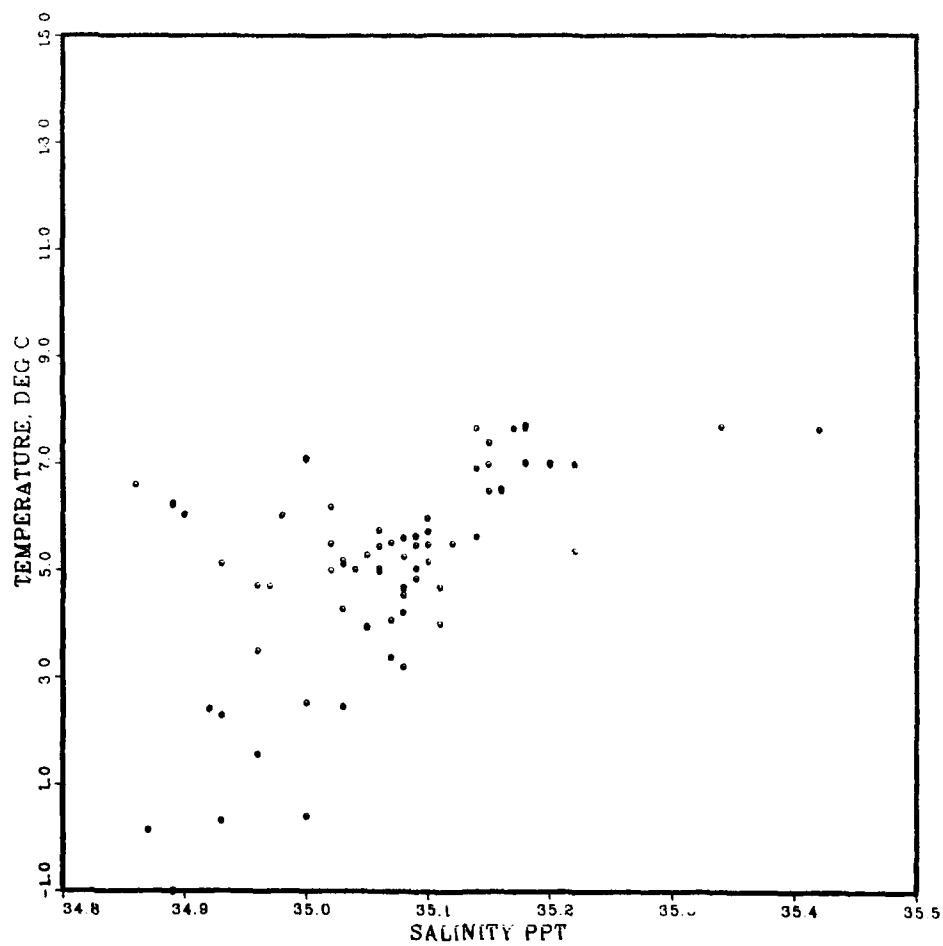
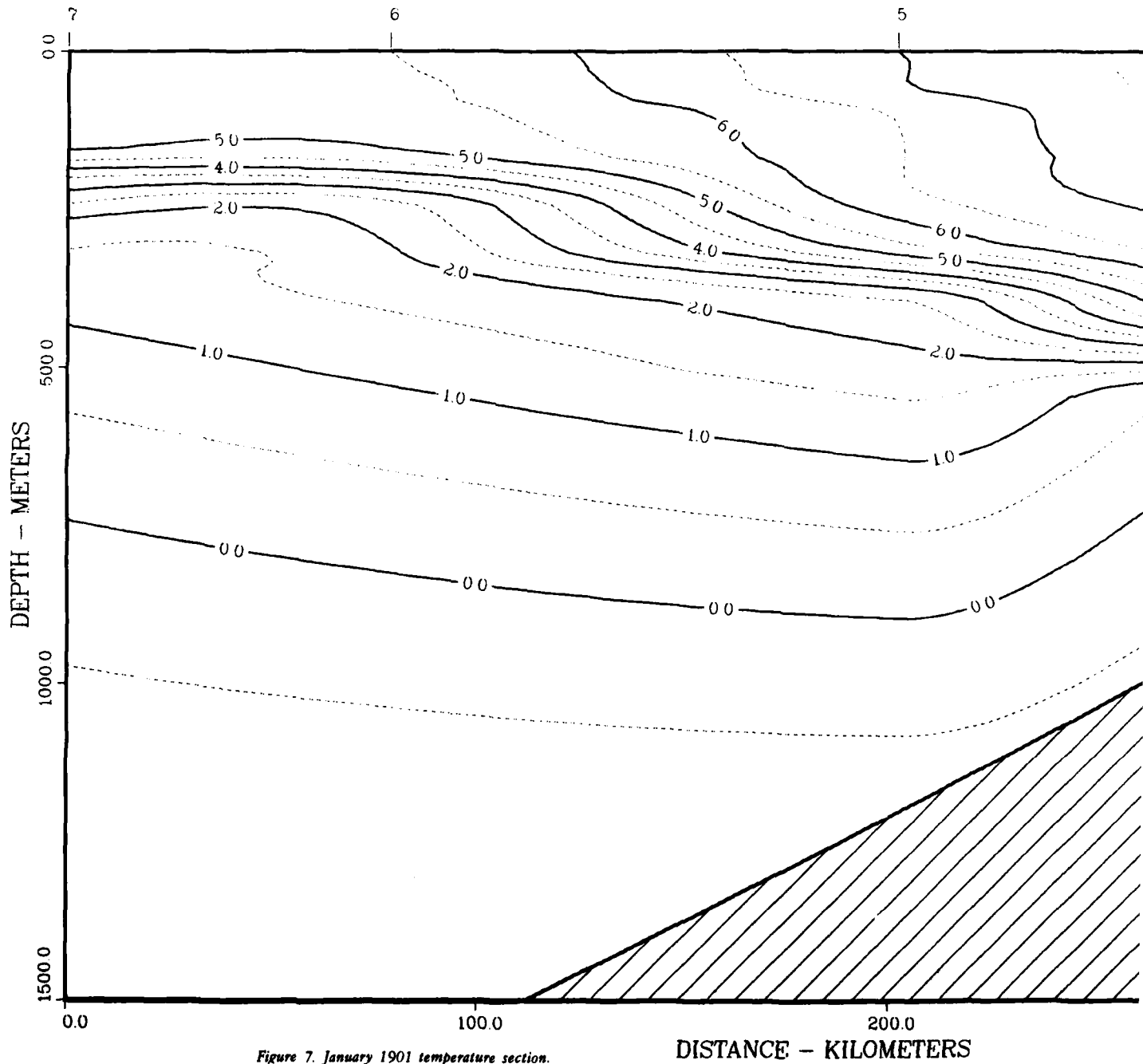
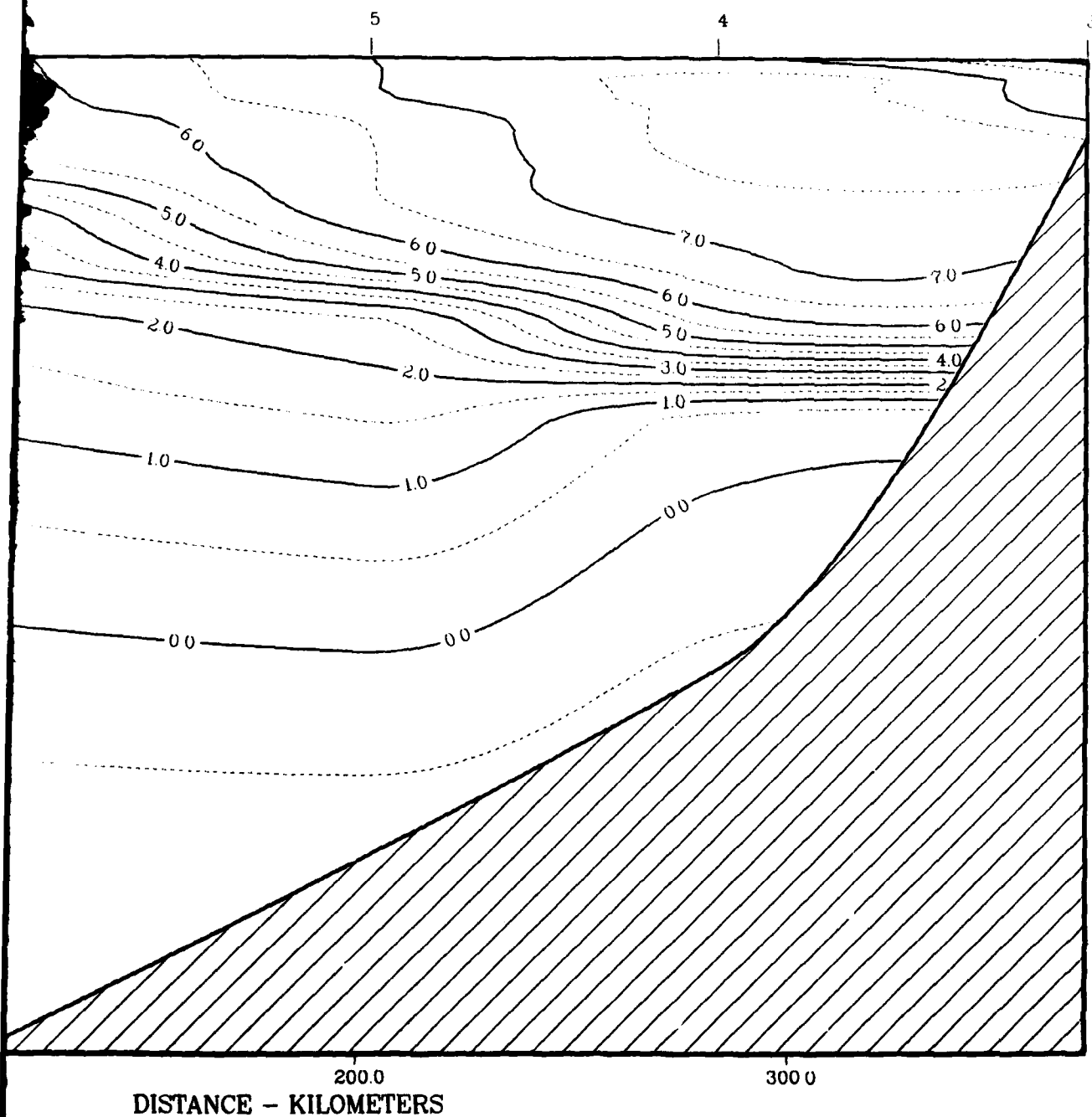


Figure 6. January 1901 temperature/salinity diagram.

SOGNEFJORD SECTION
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TEMPERATURE



SOGNEFJORD SECTION
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TEMPERATURE



SOGNEFJORD SECTION
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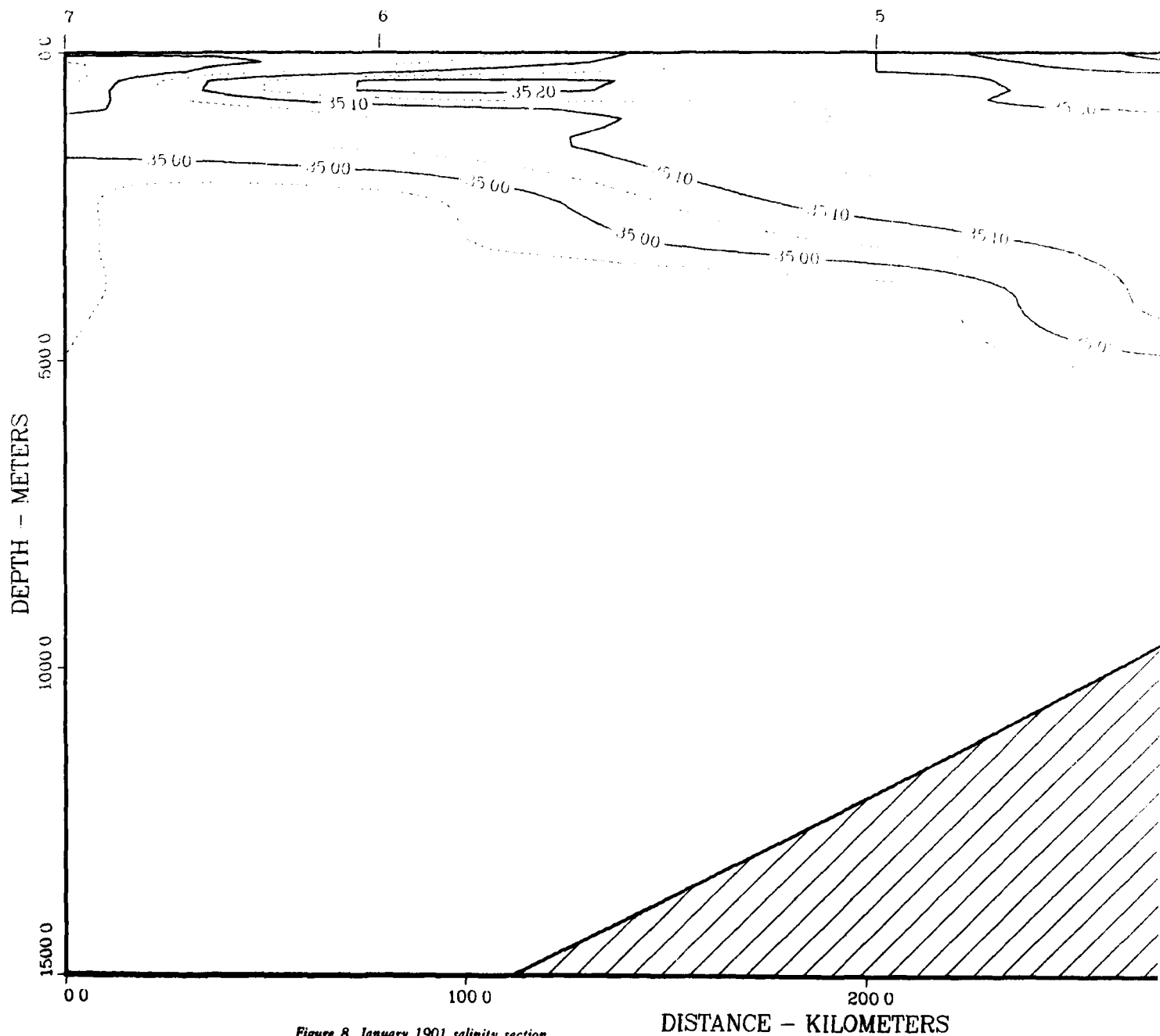
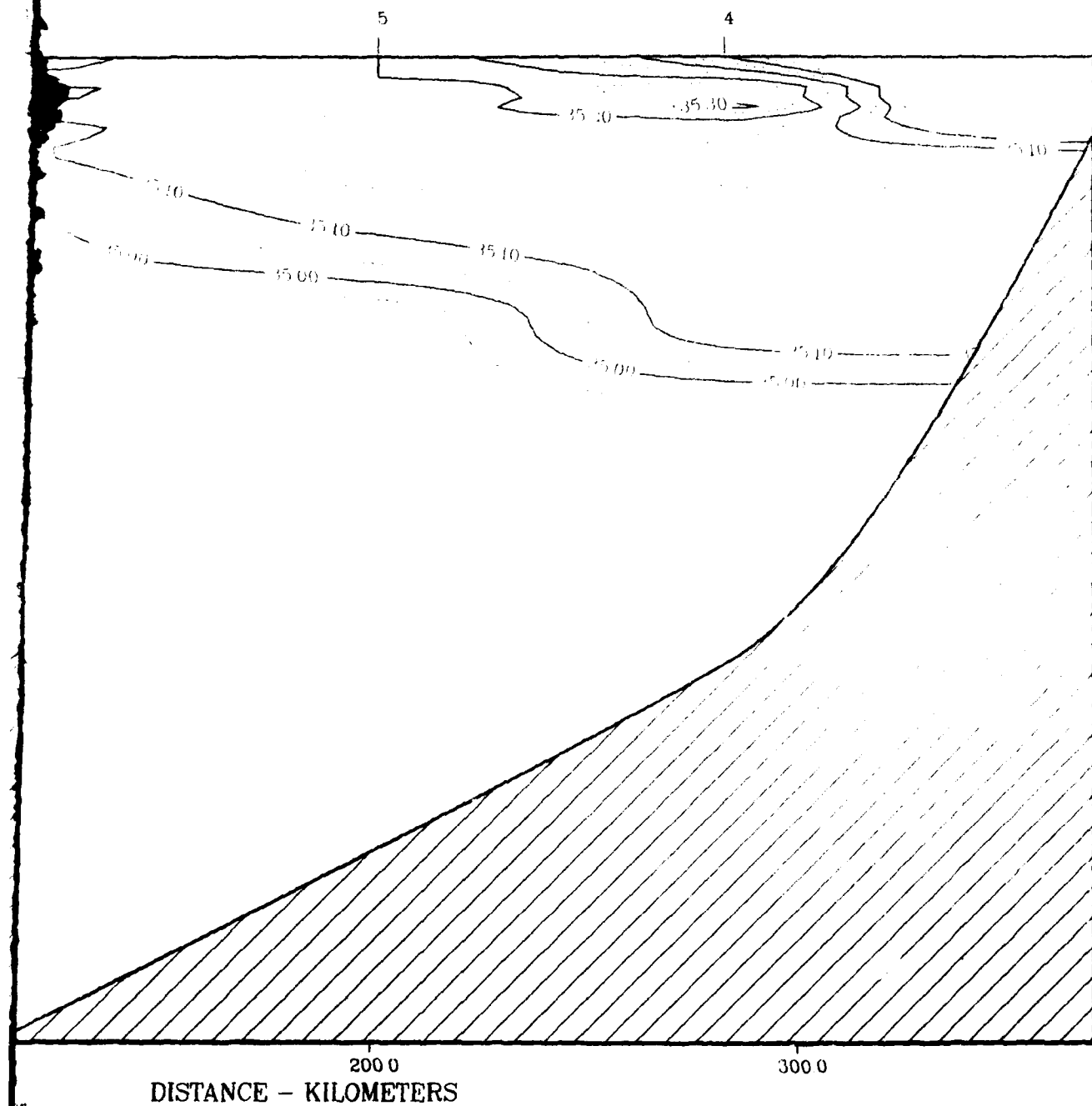


Figure 8. January 1901 salinity section.

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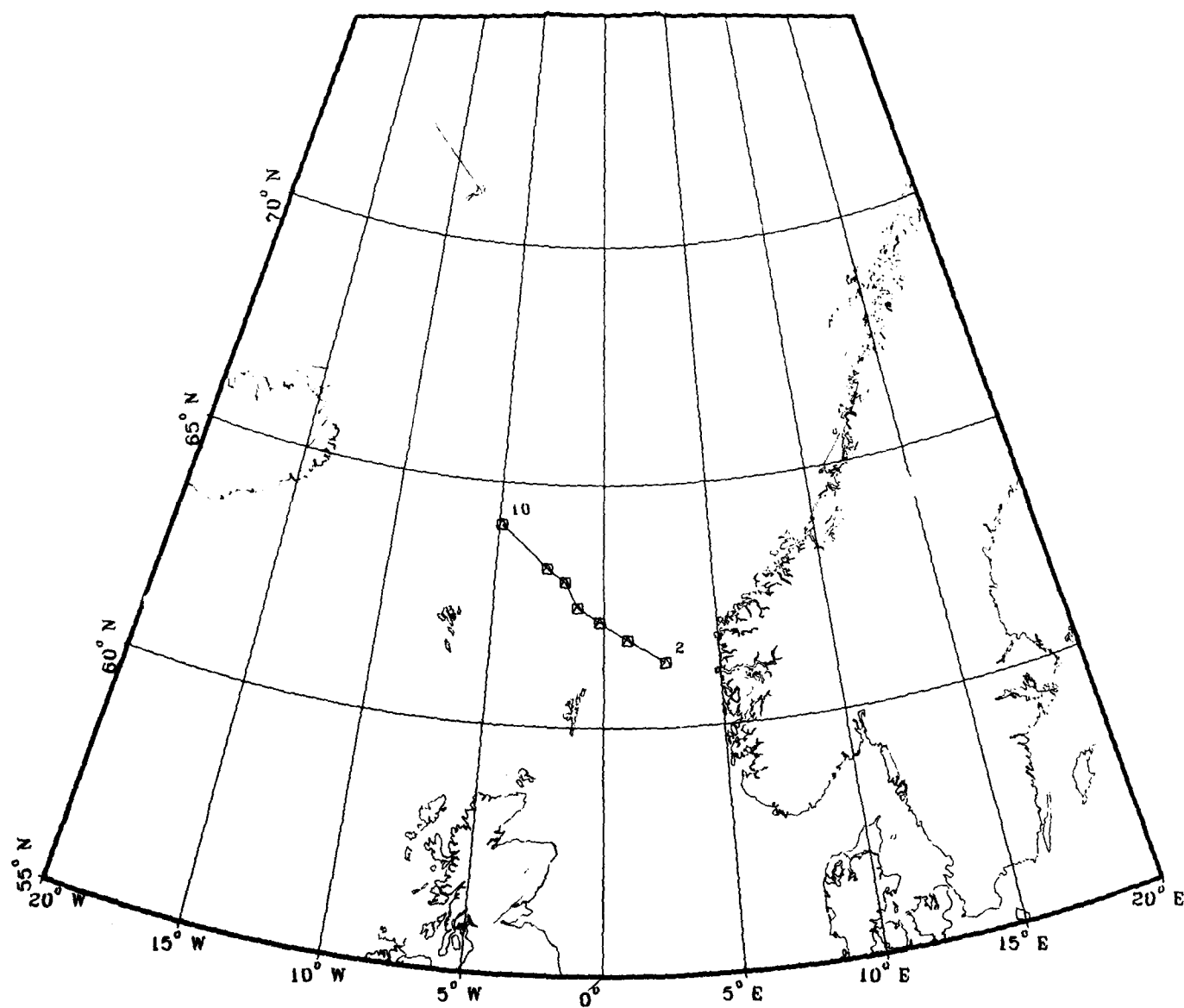


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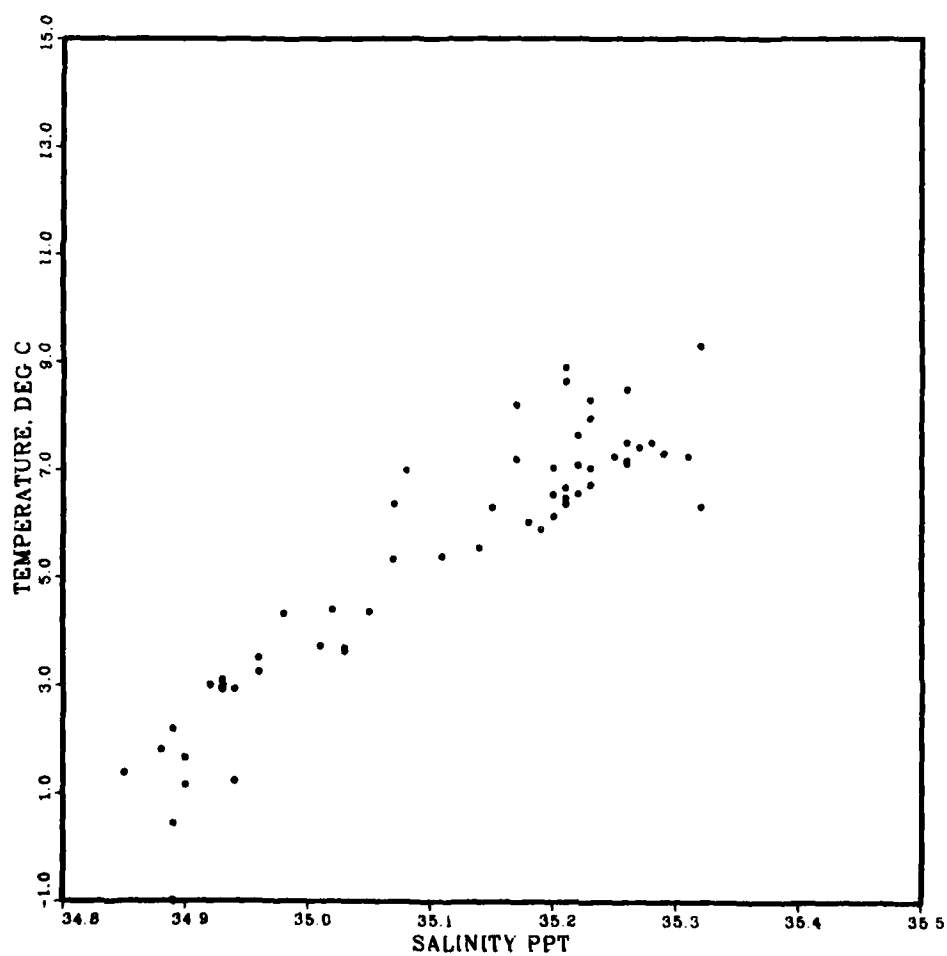


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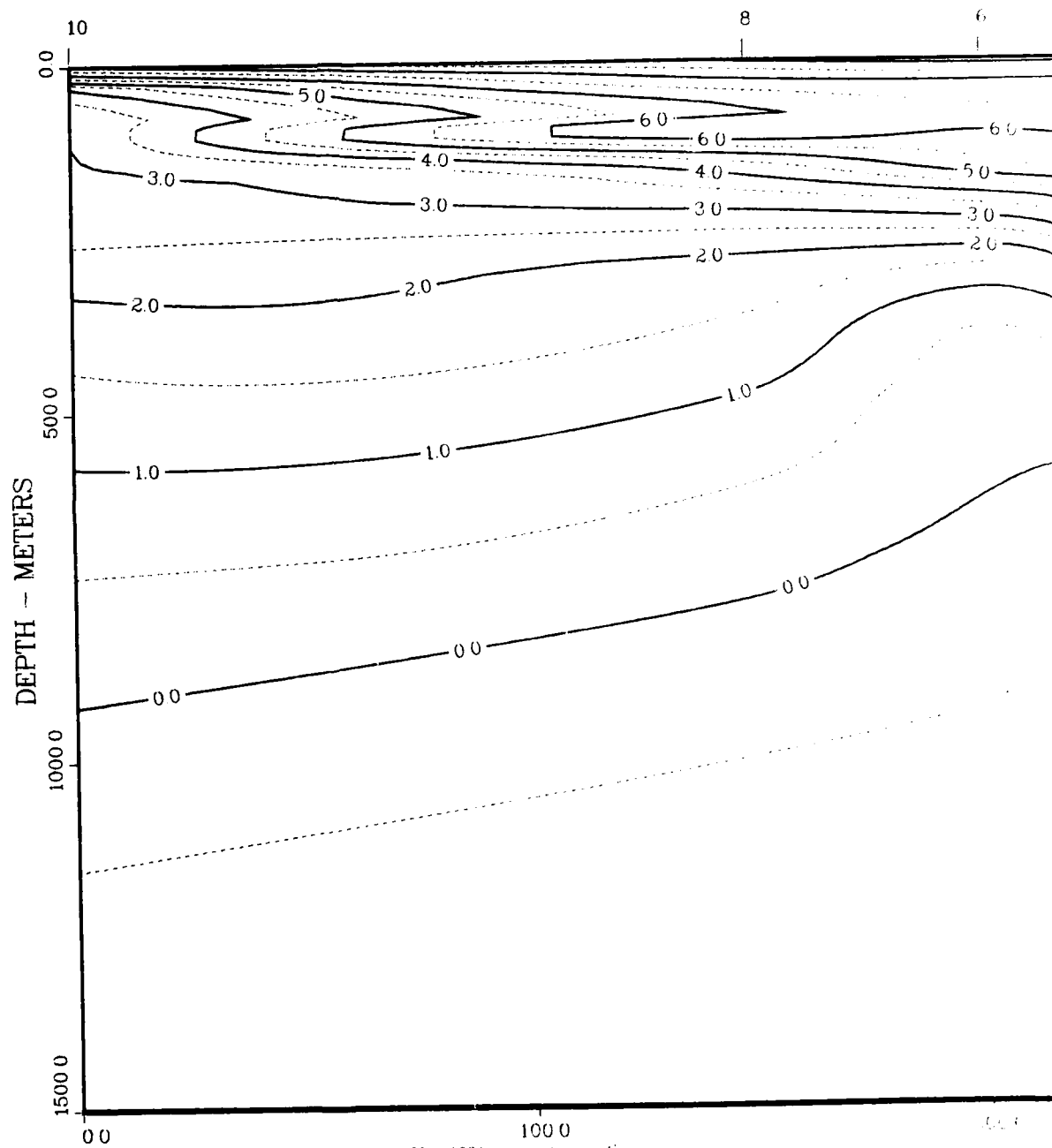
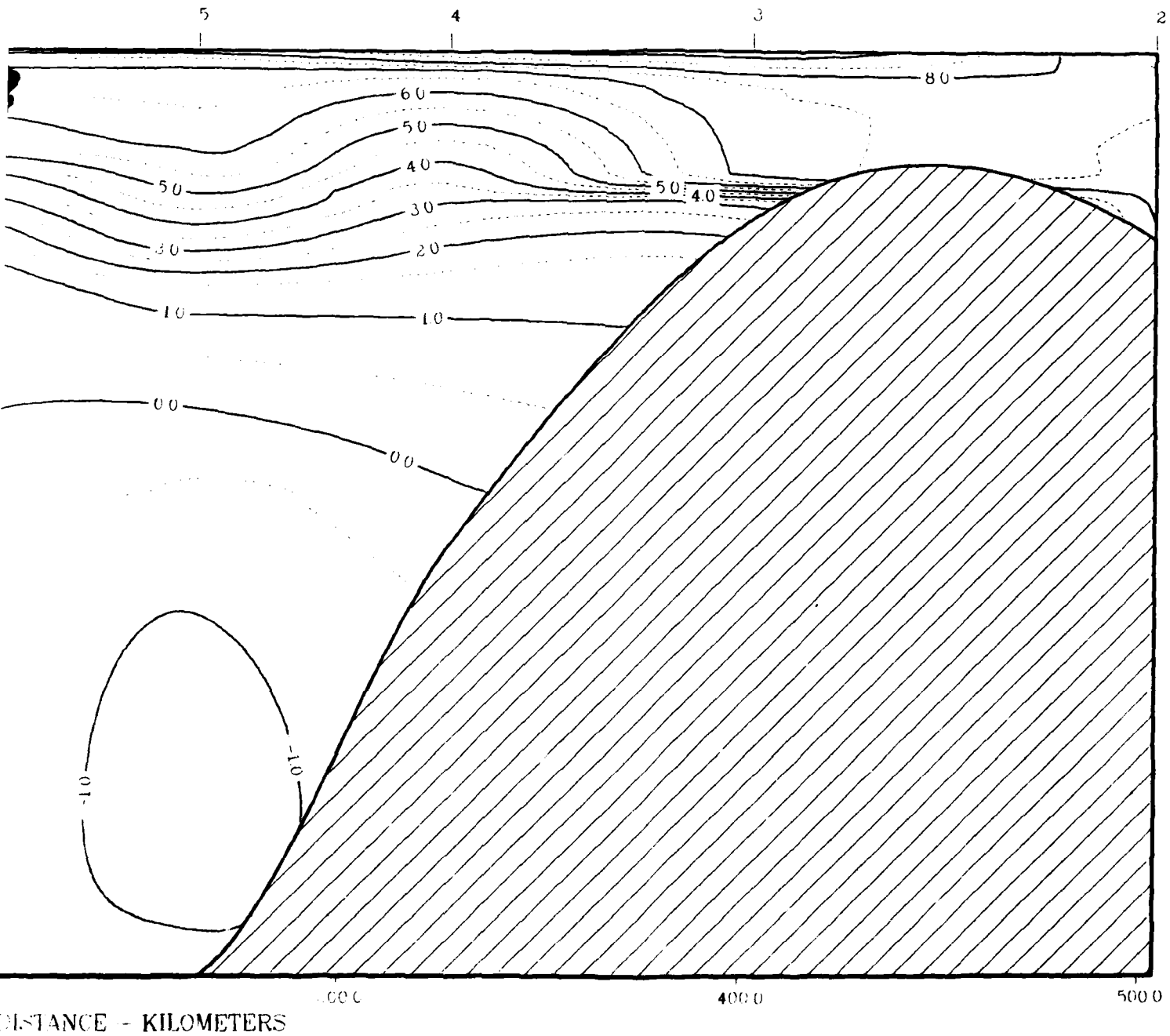


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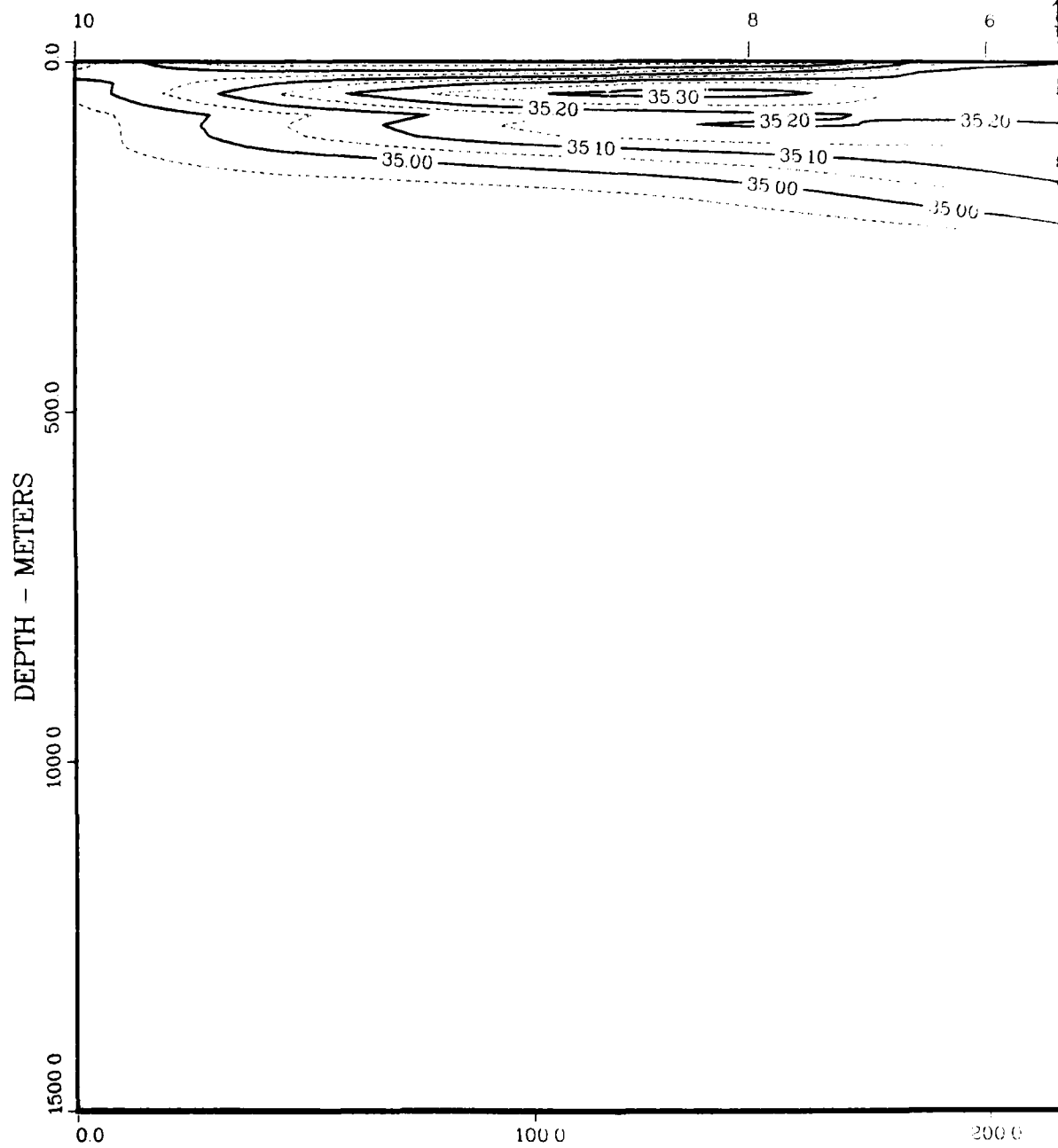
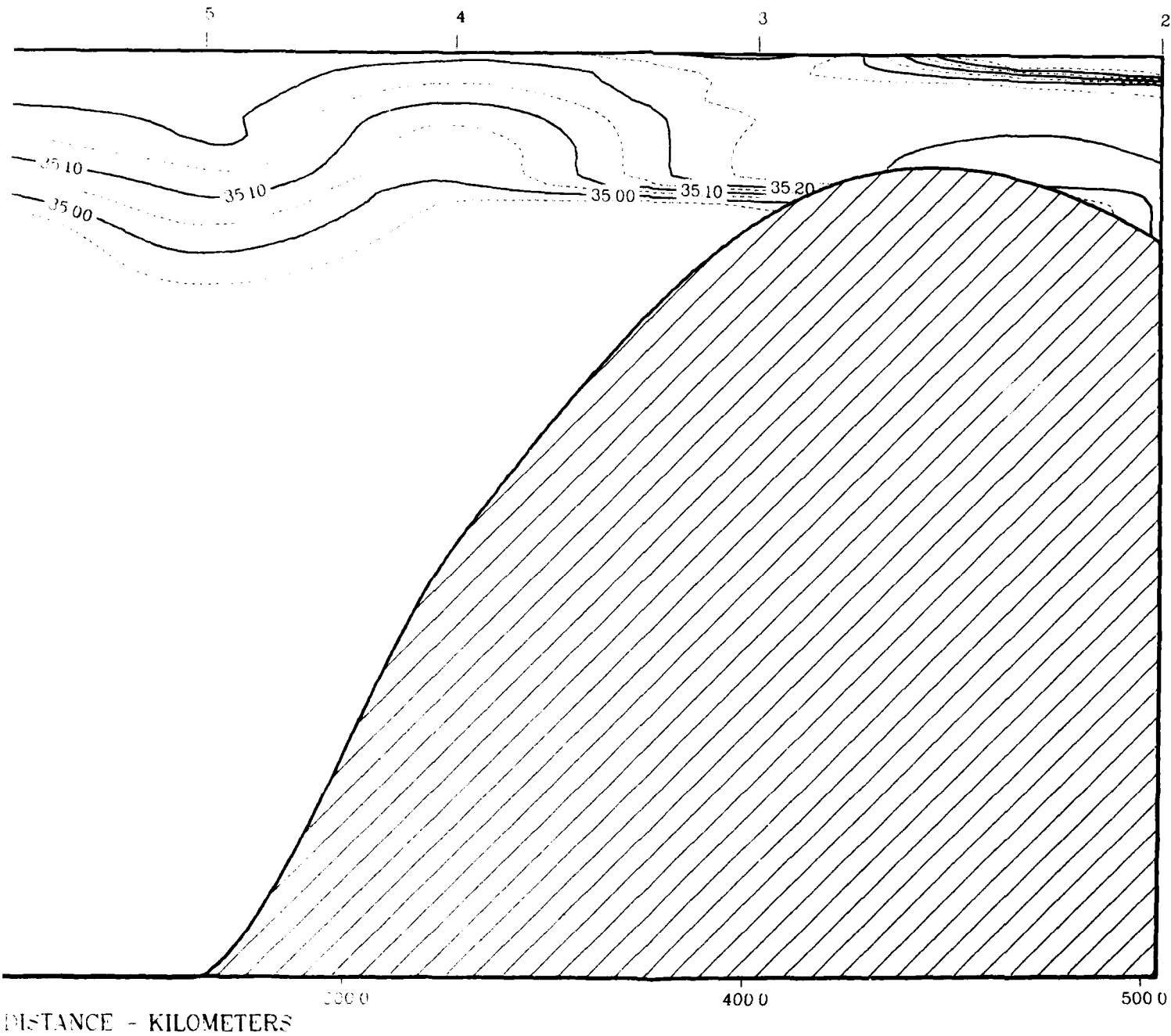


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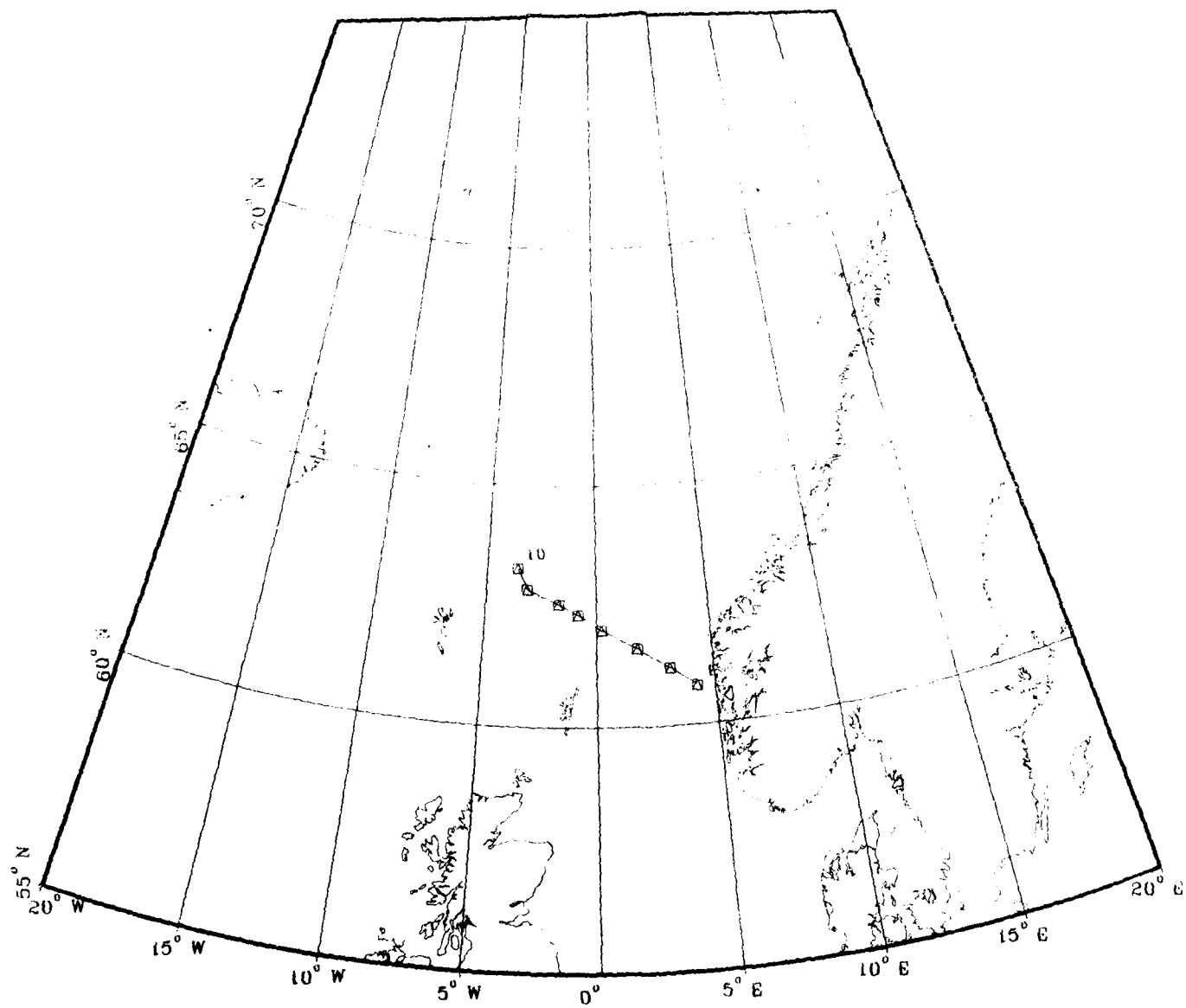


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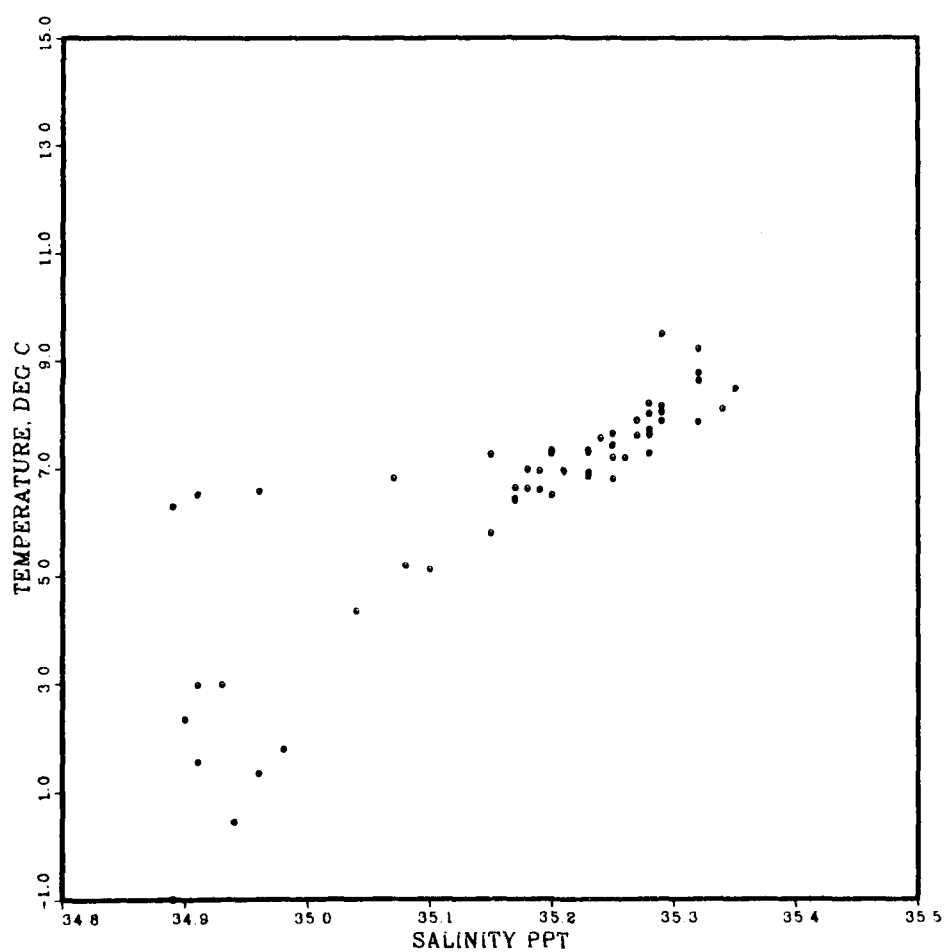
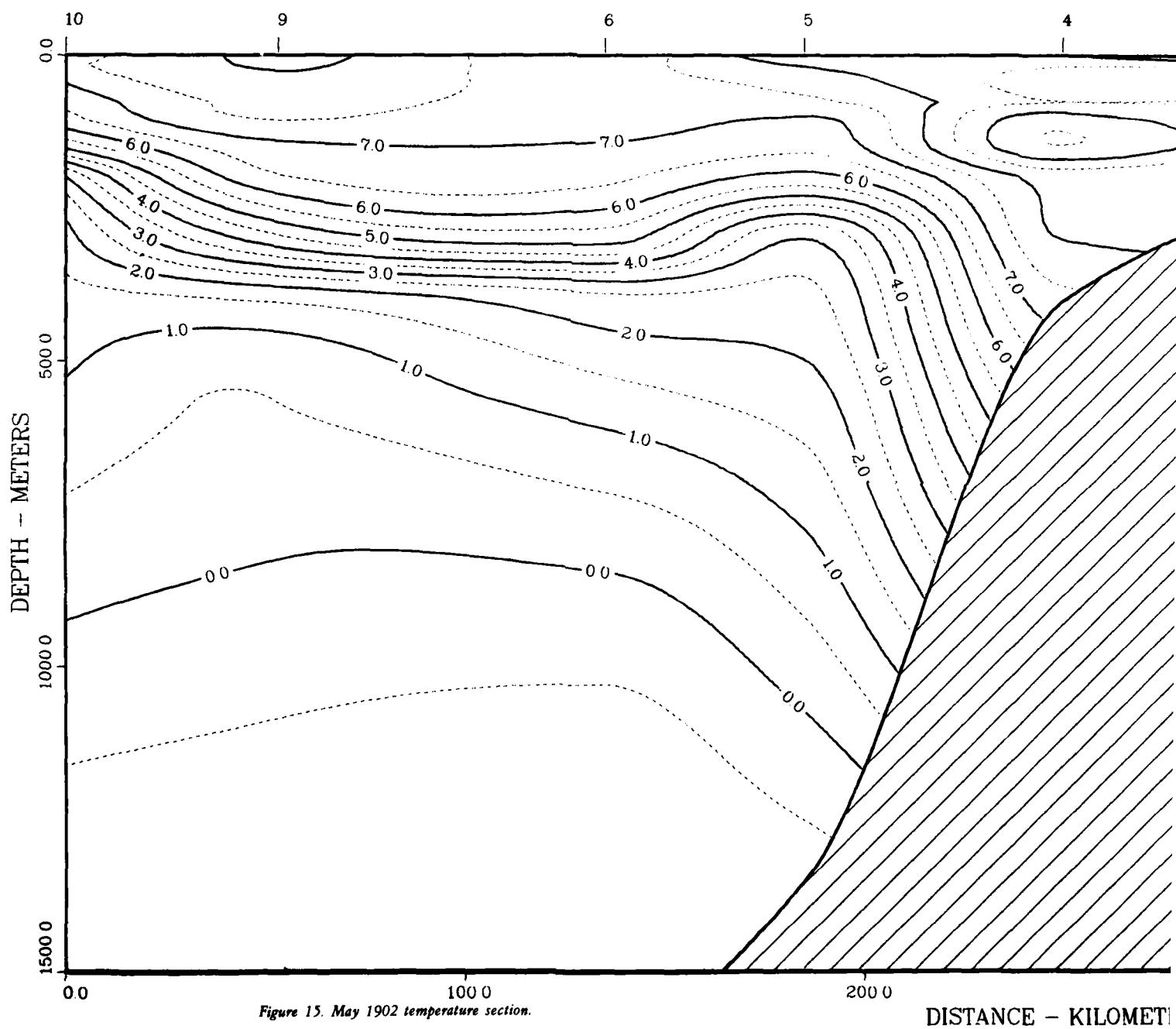
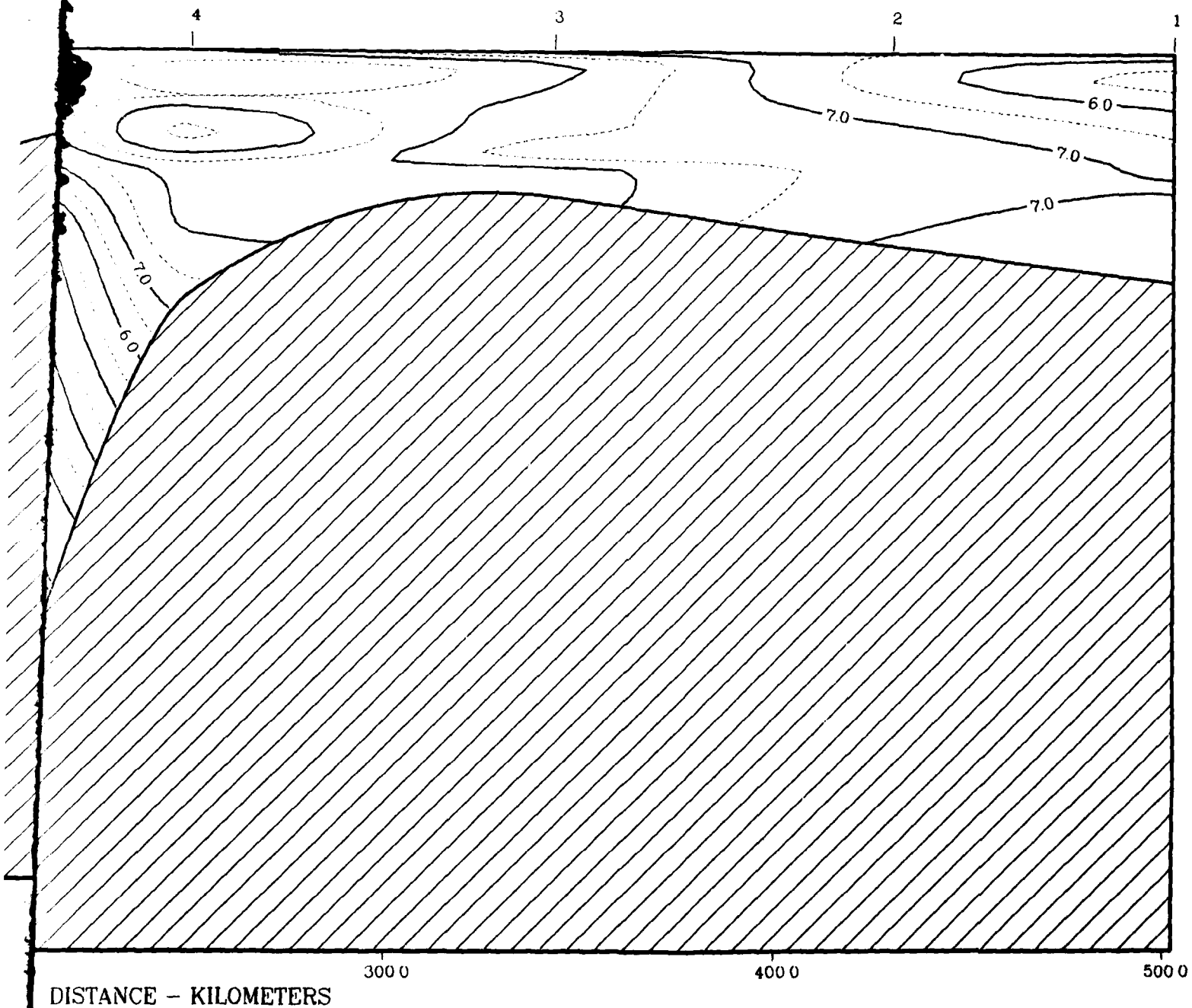


Figure 14. May 1902 temperature/salinity diagram.

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SOGNEFJORD SECTION
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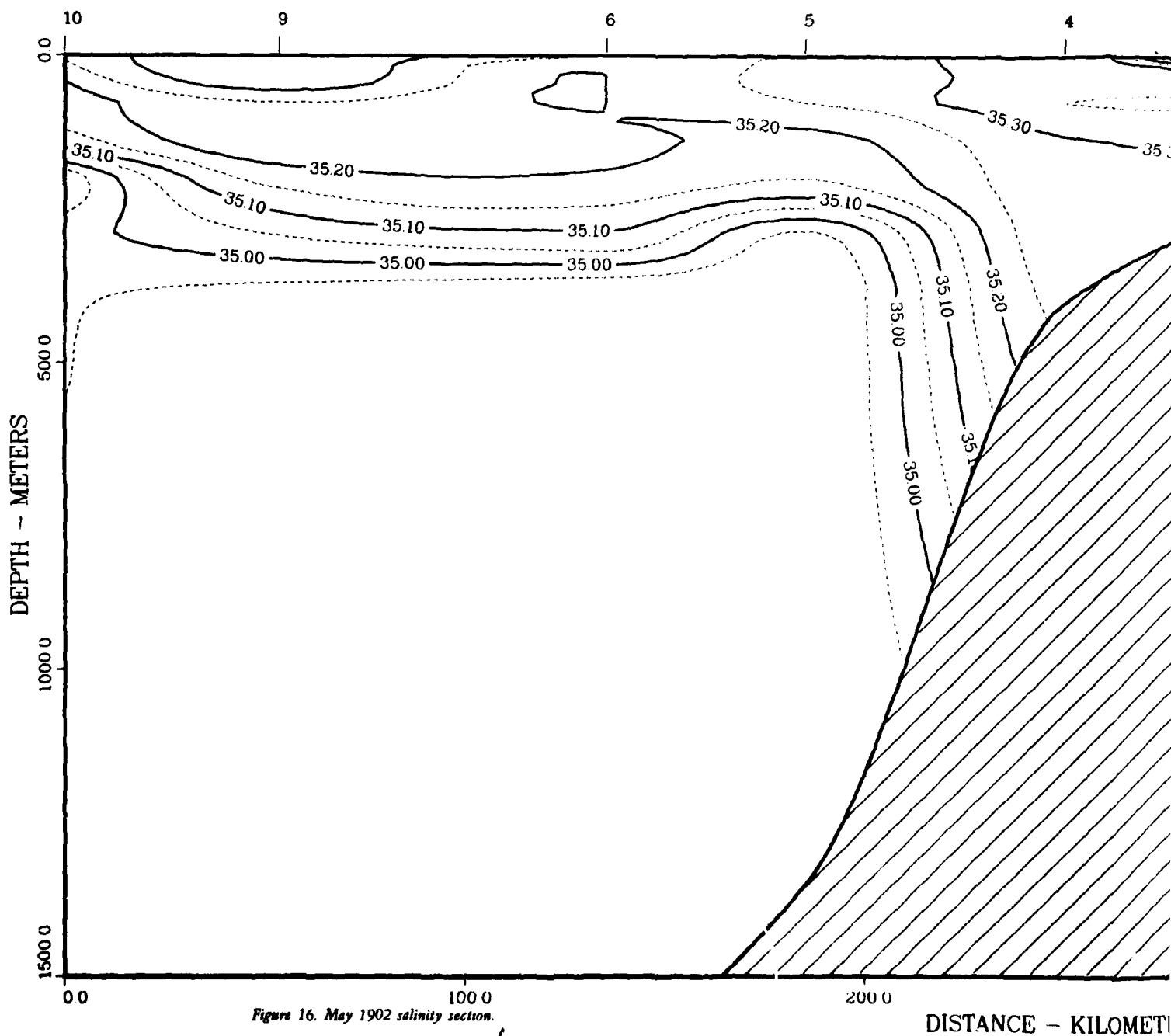
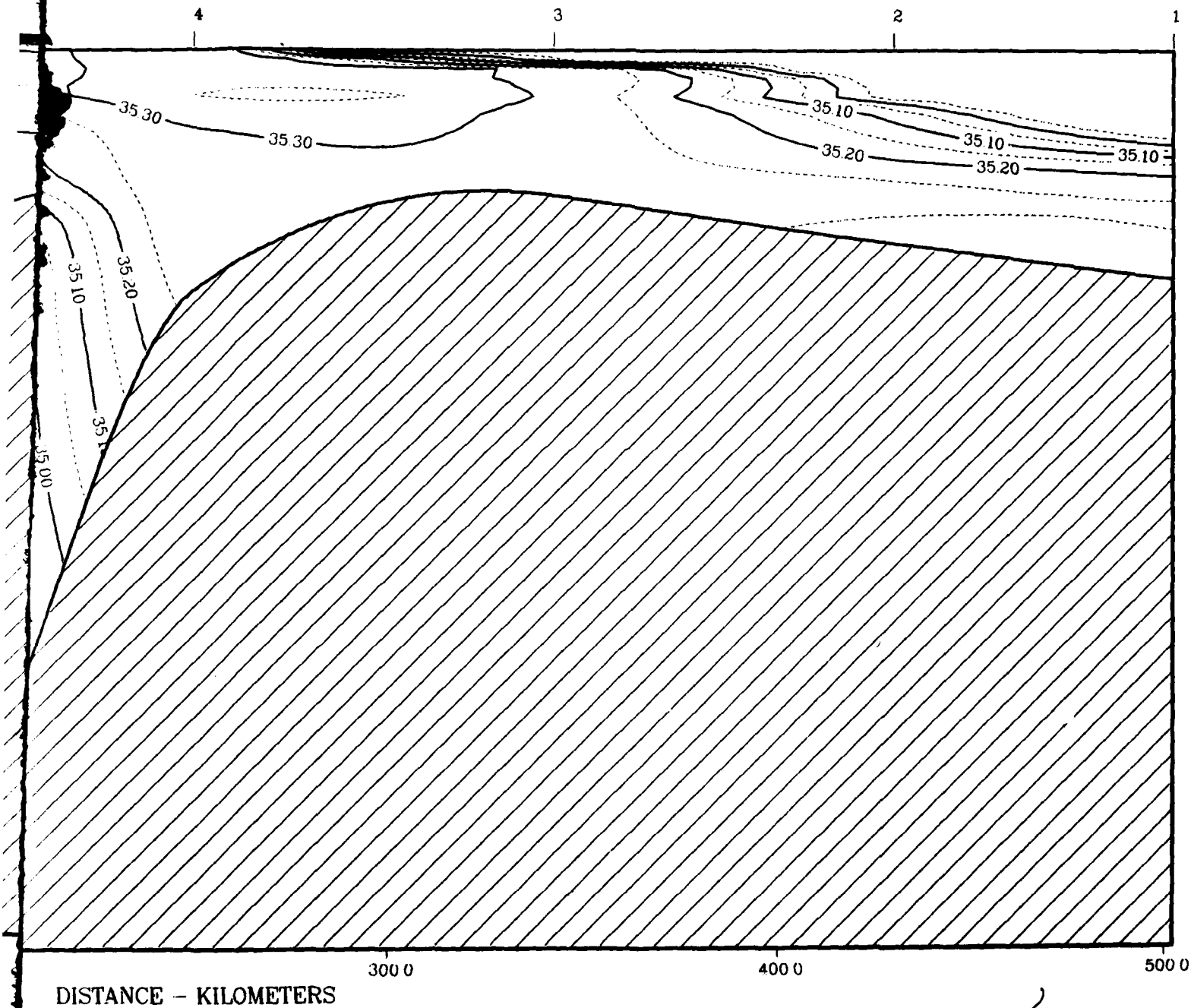


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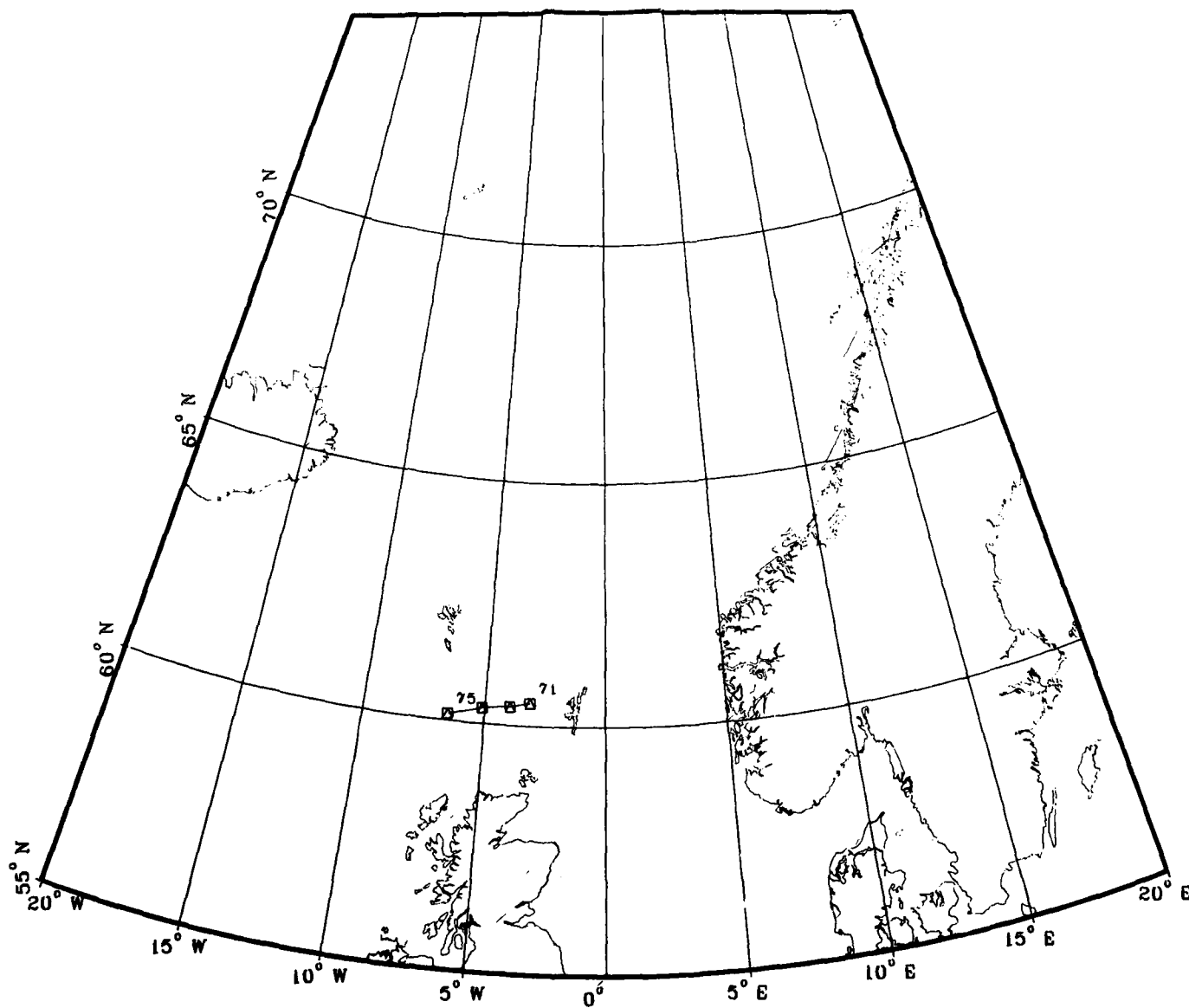


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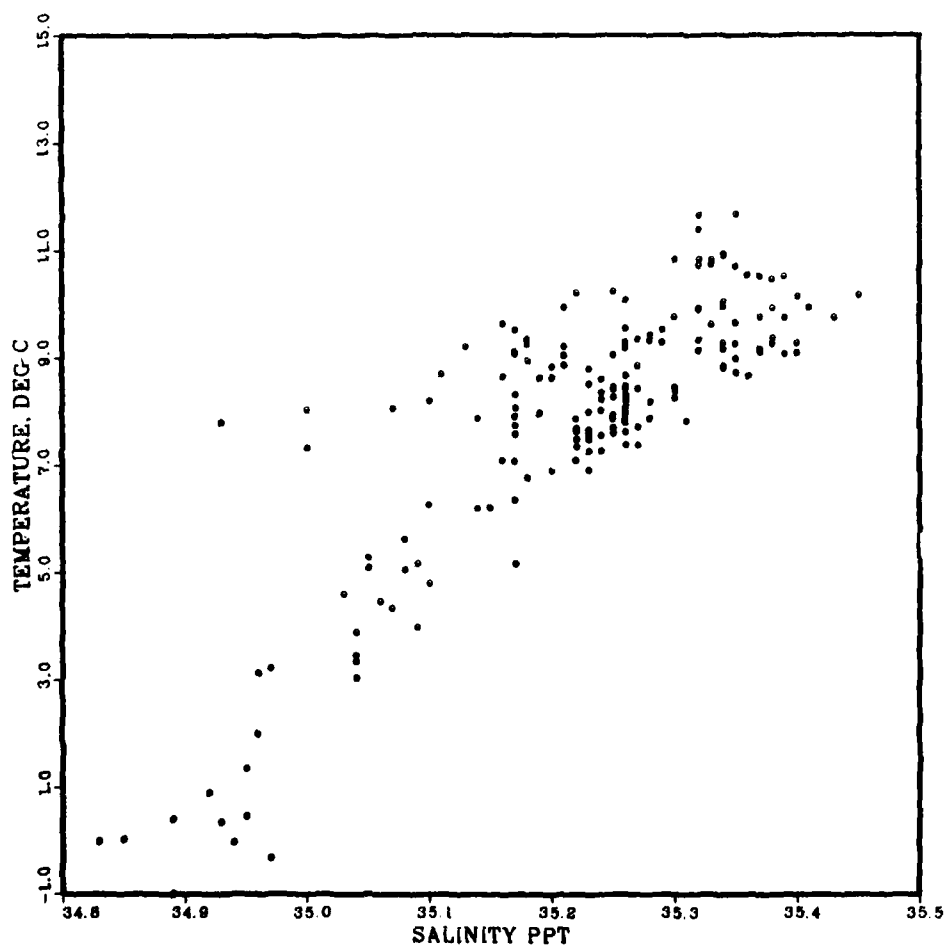


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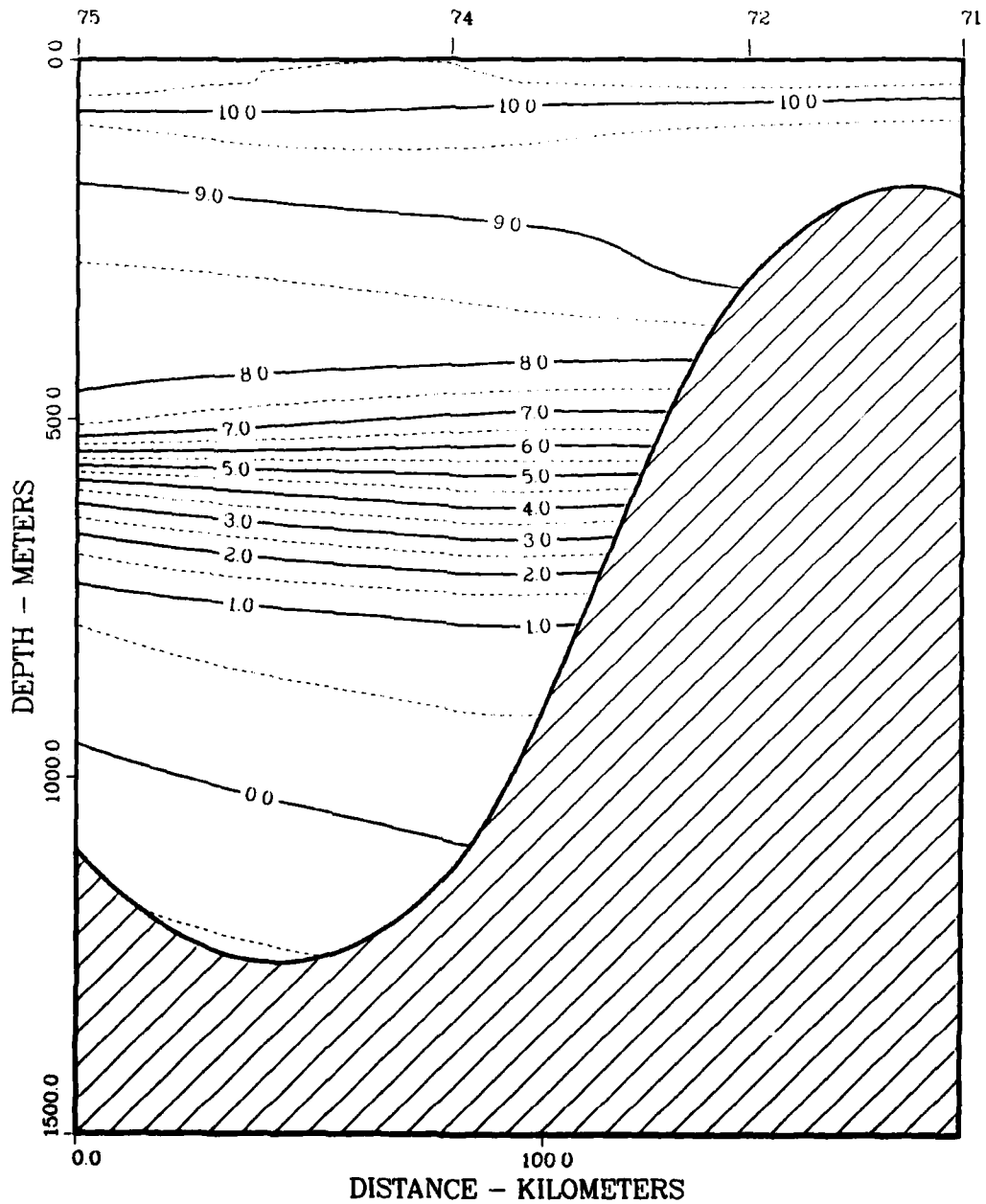


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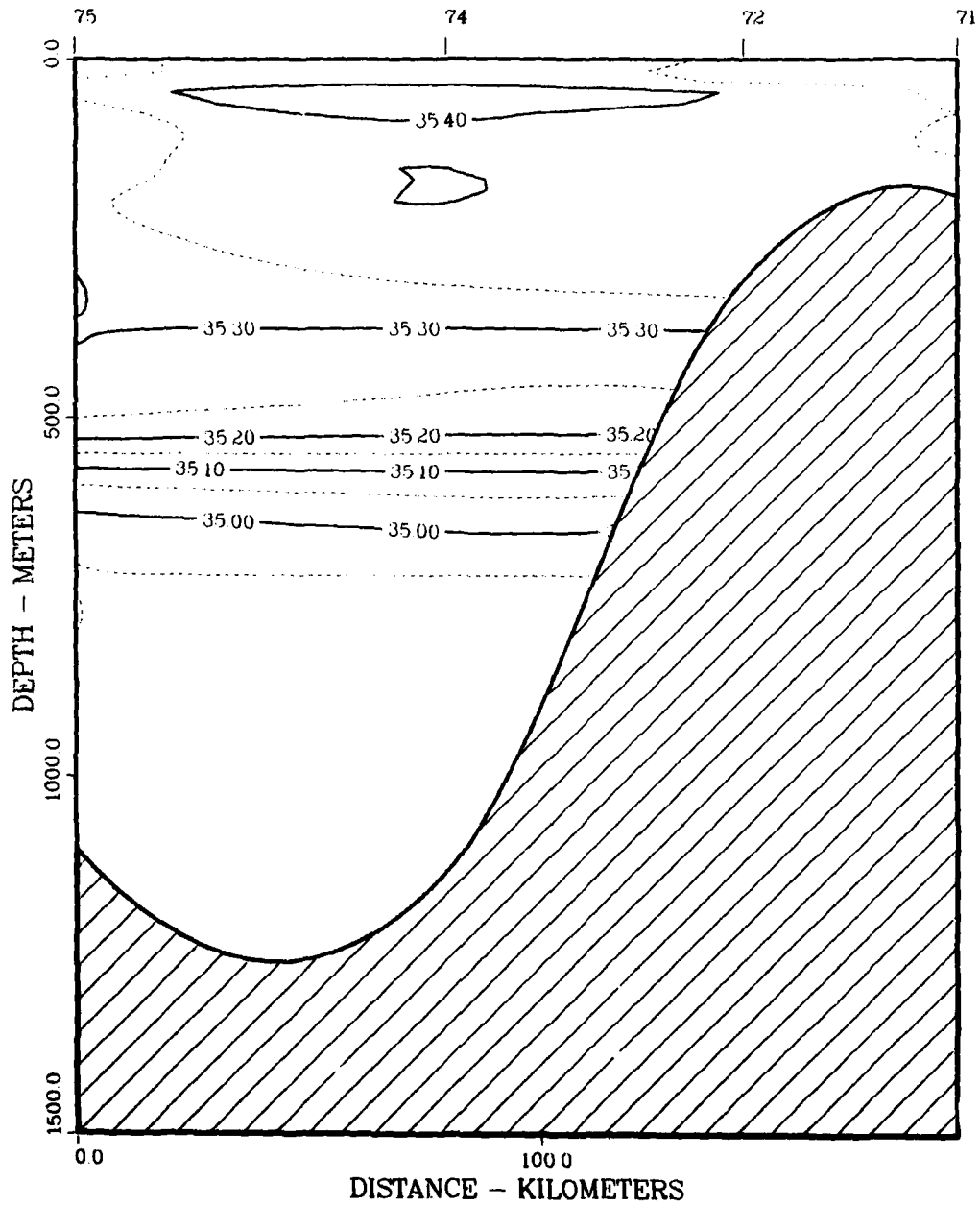


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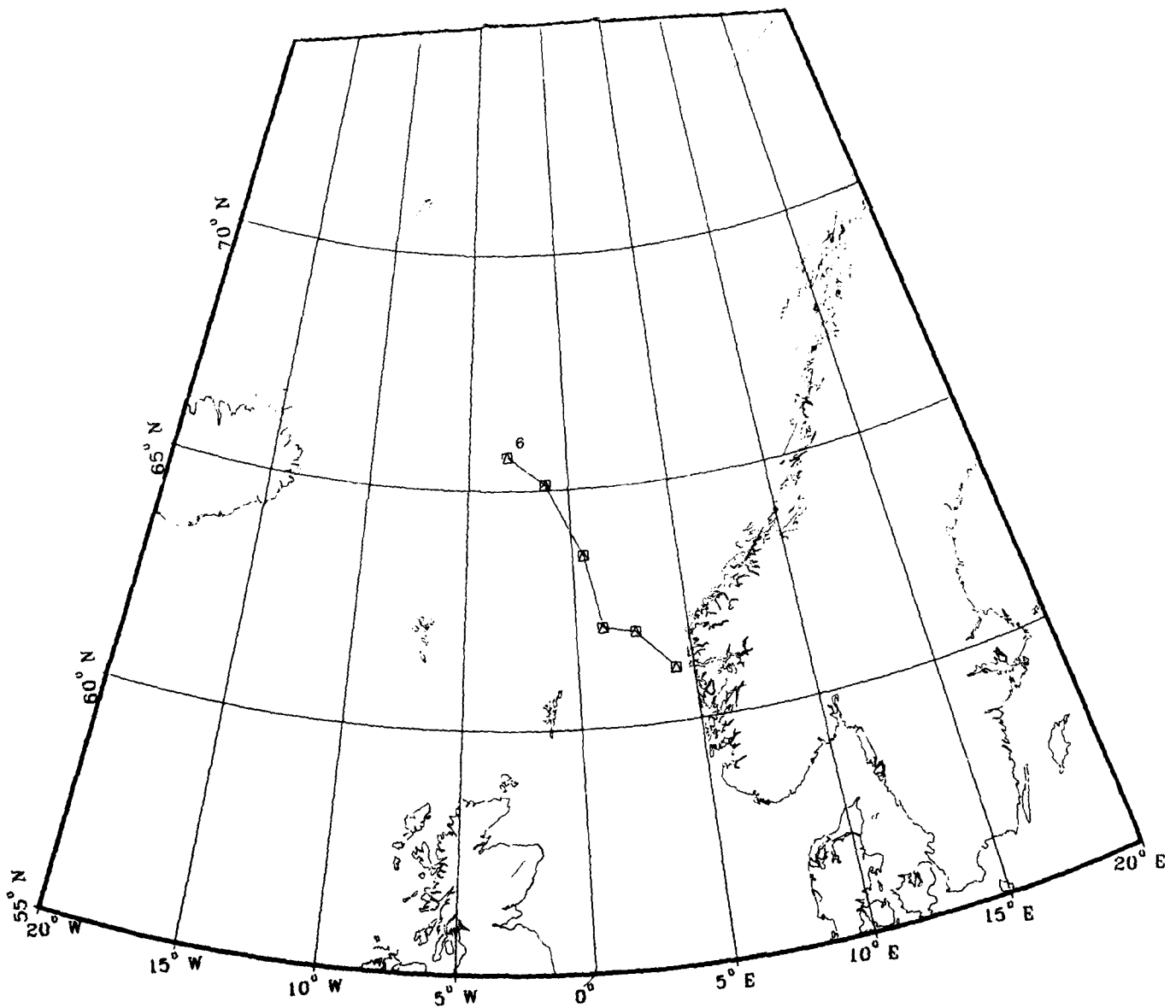


Figure 21. February 1903 station positions.

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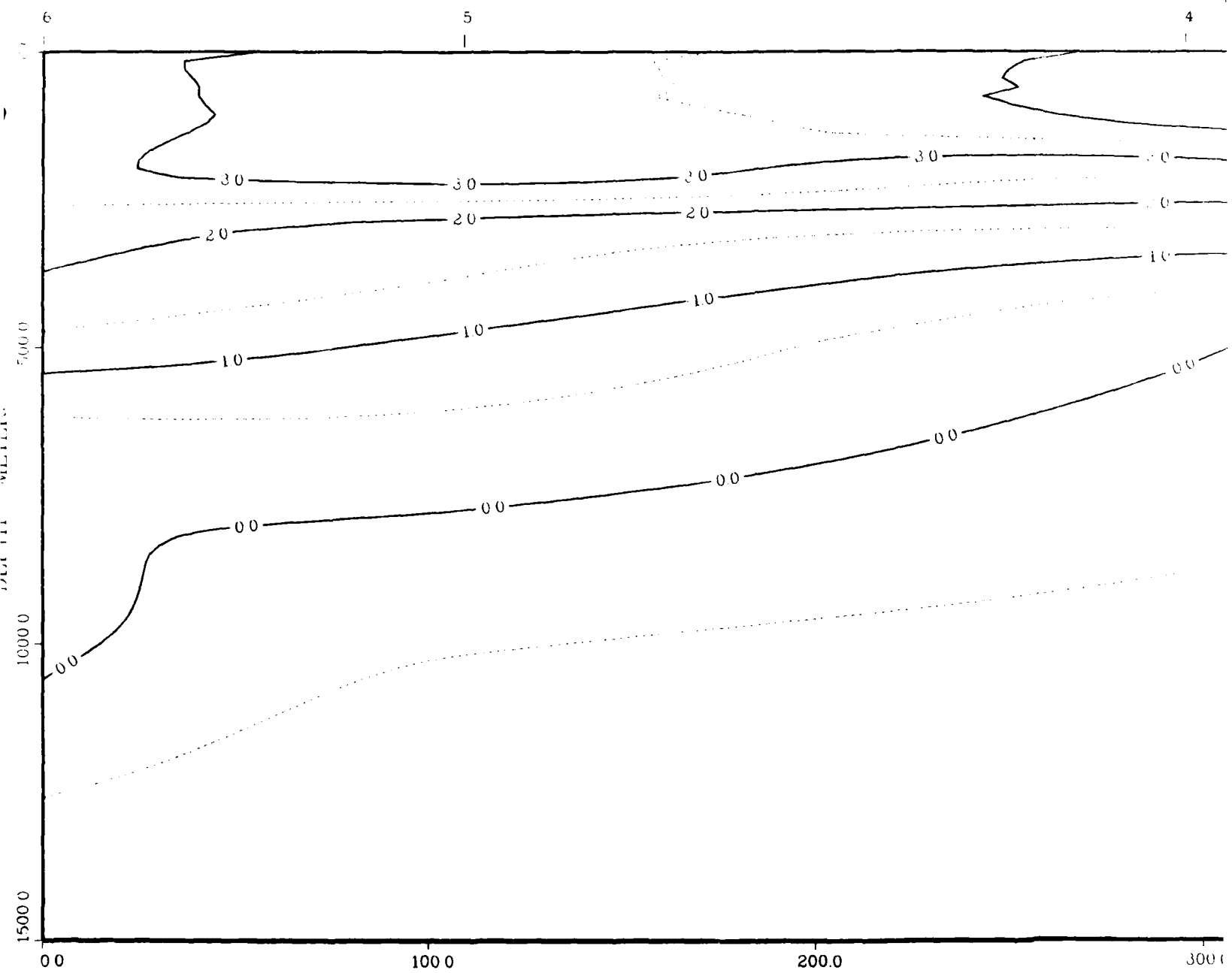
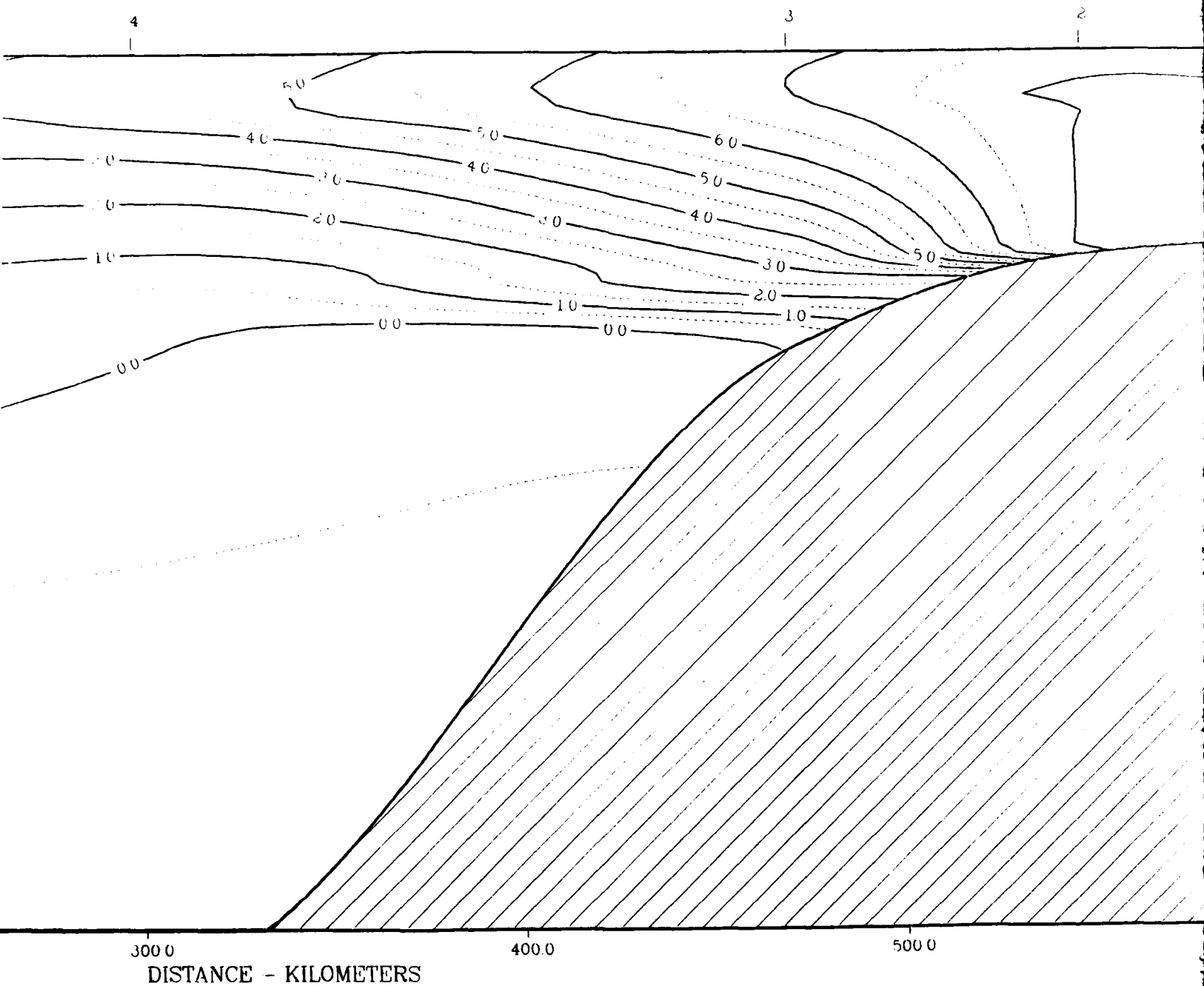
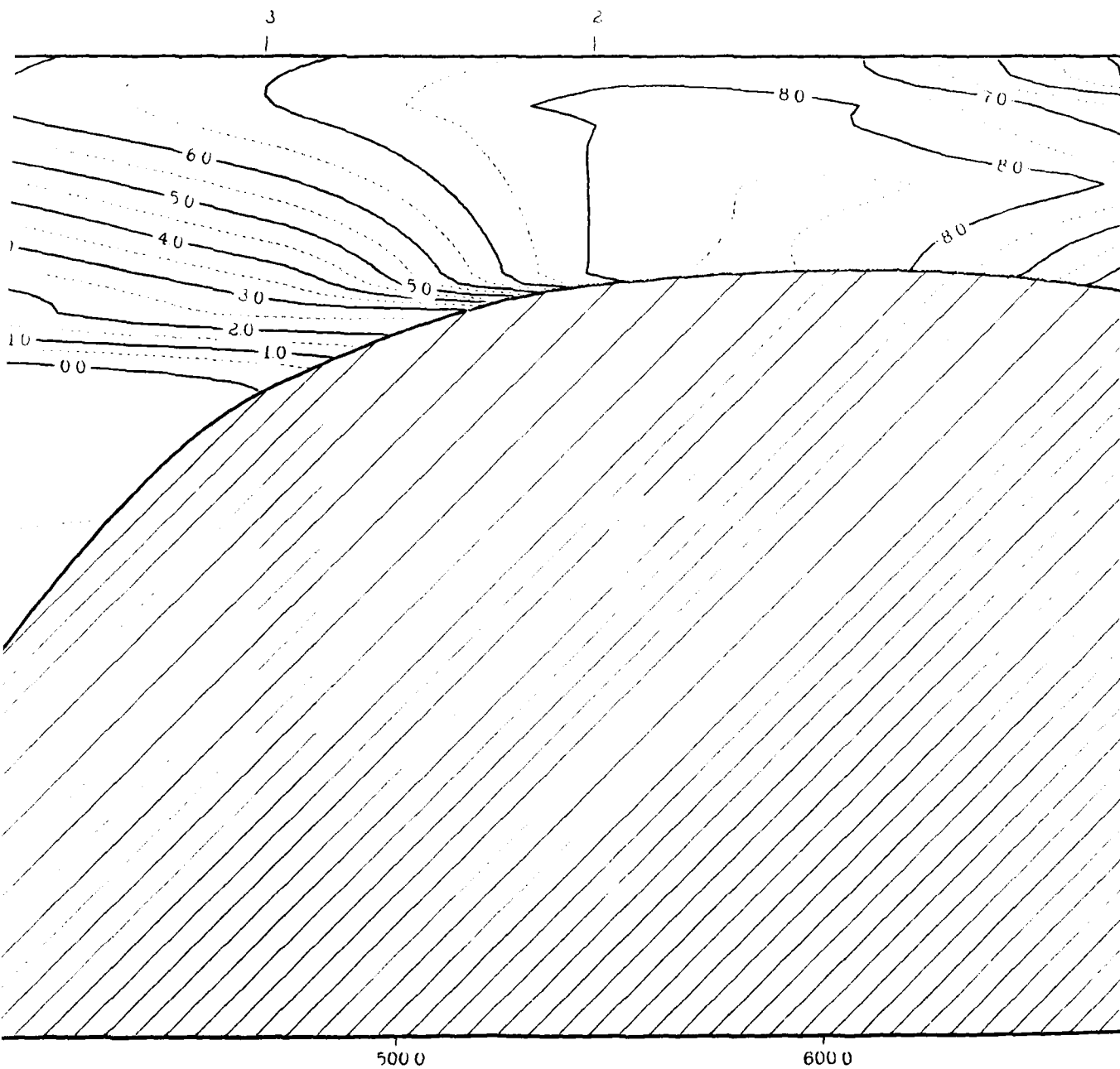


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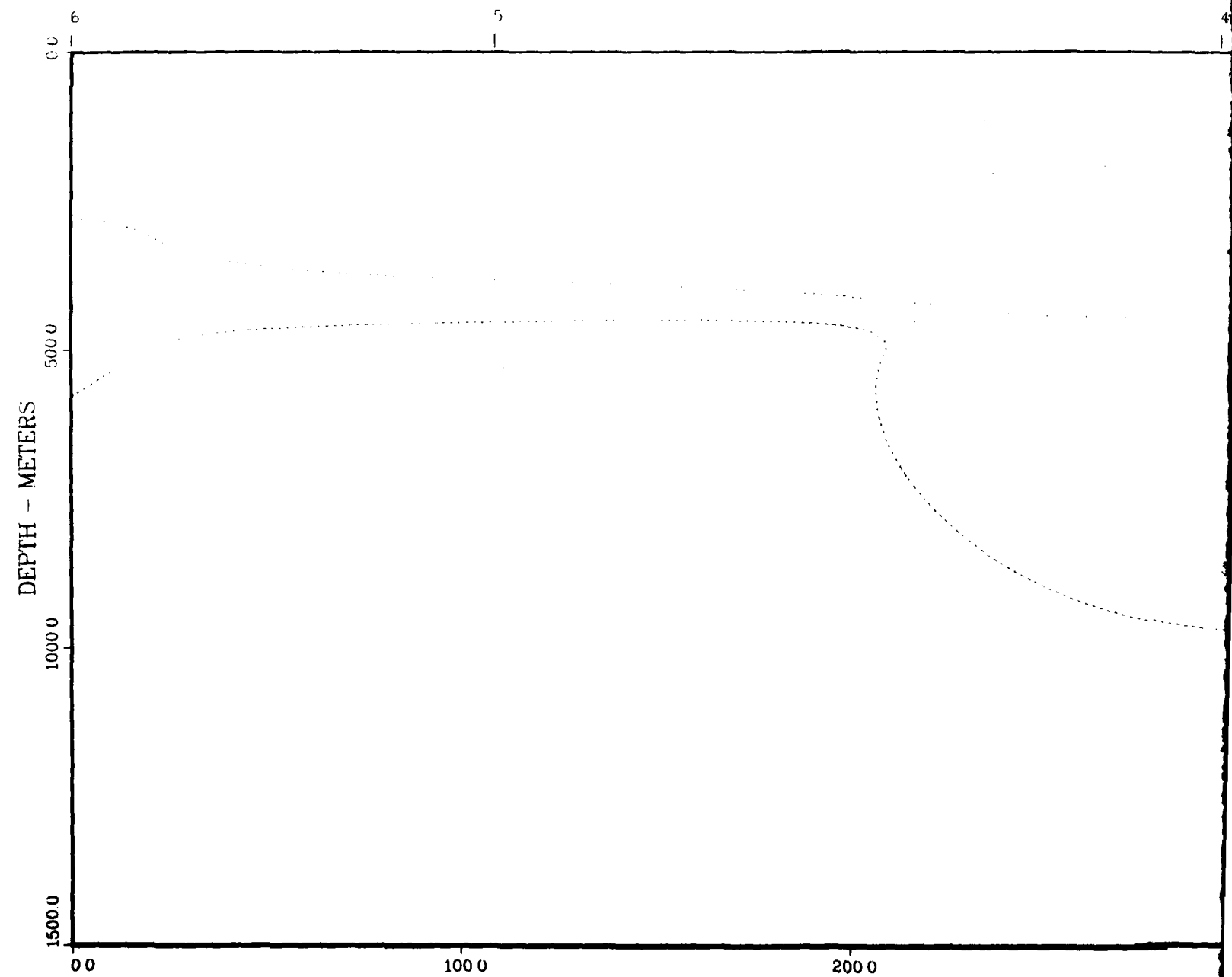
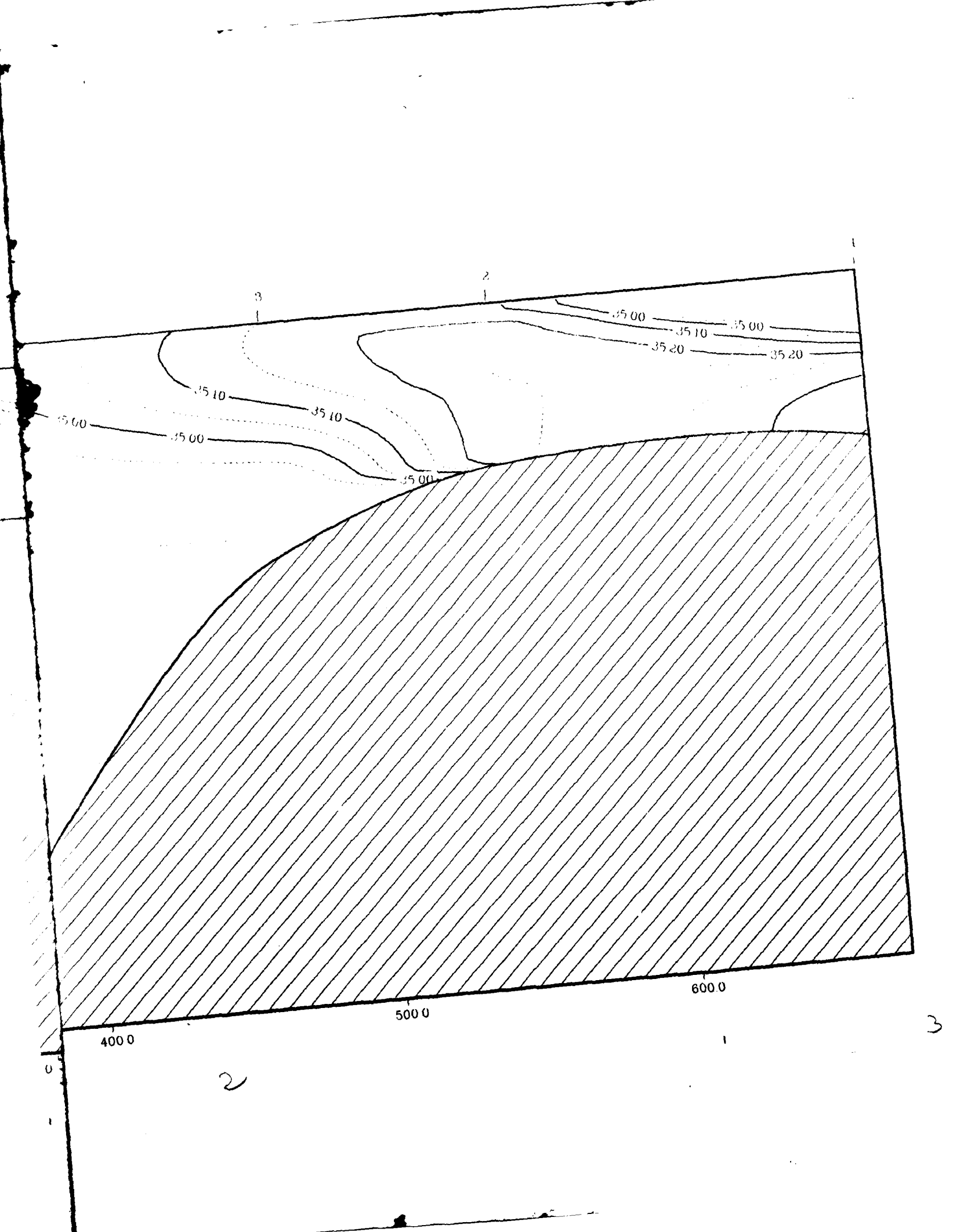


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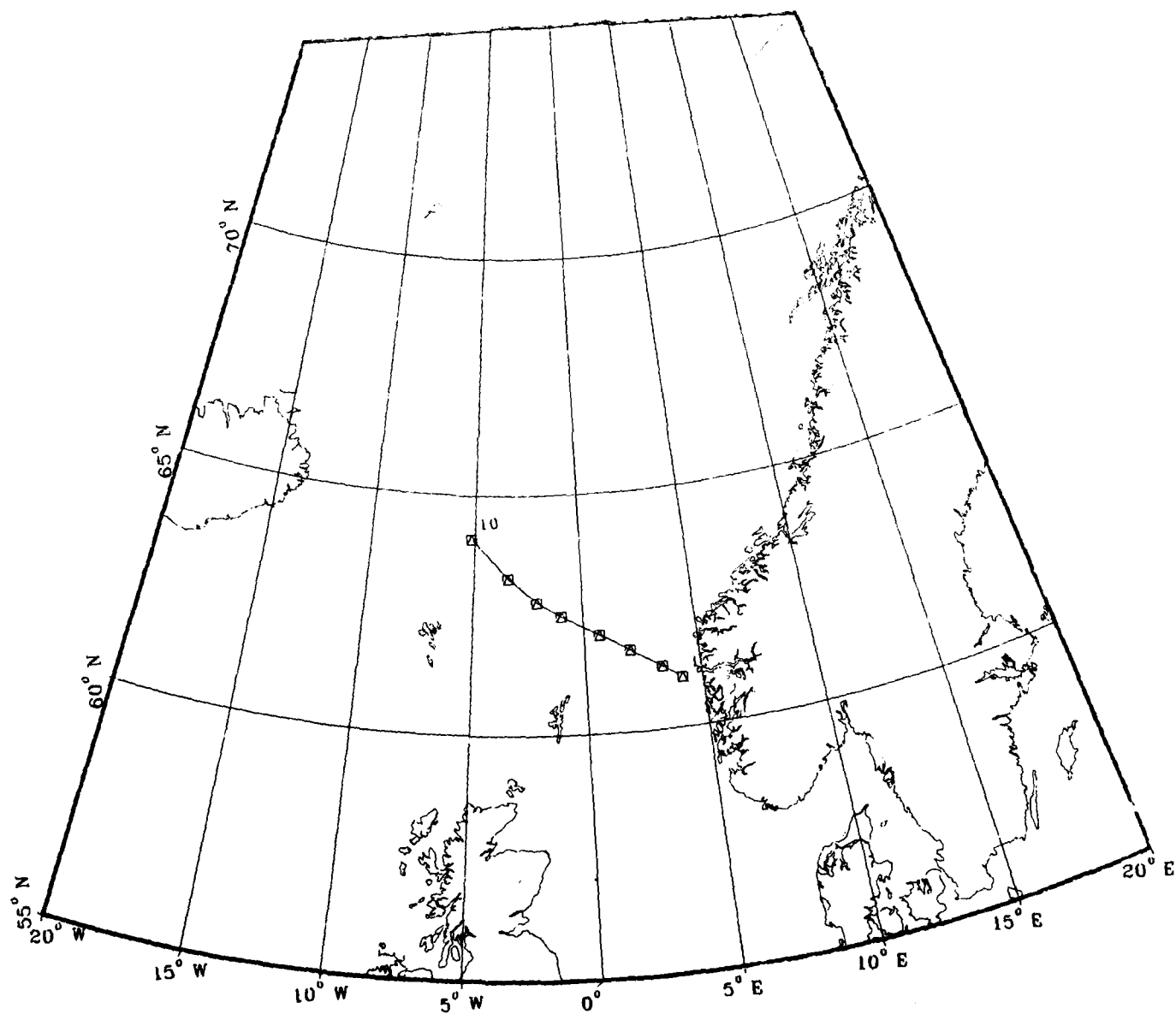


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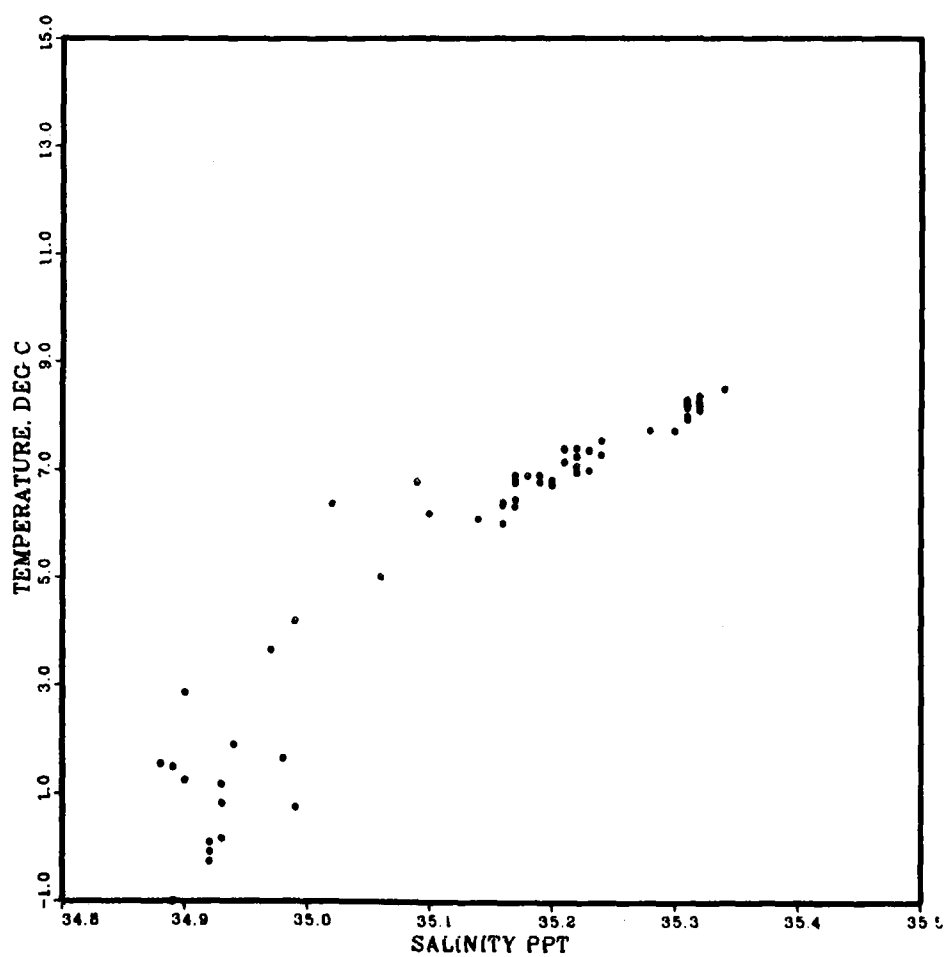


Figure 26. May 1903 temperature/salinity diagram.

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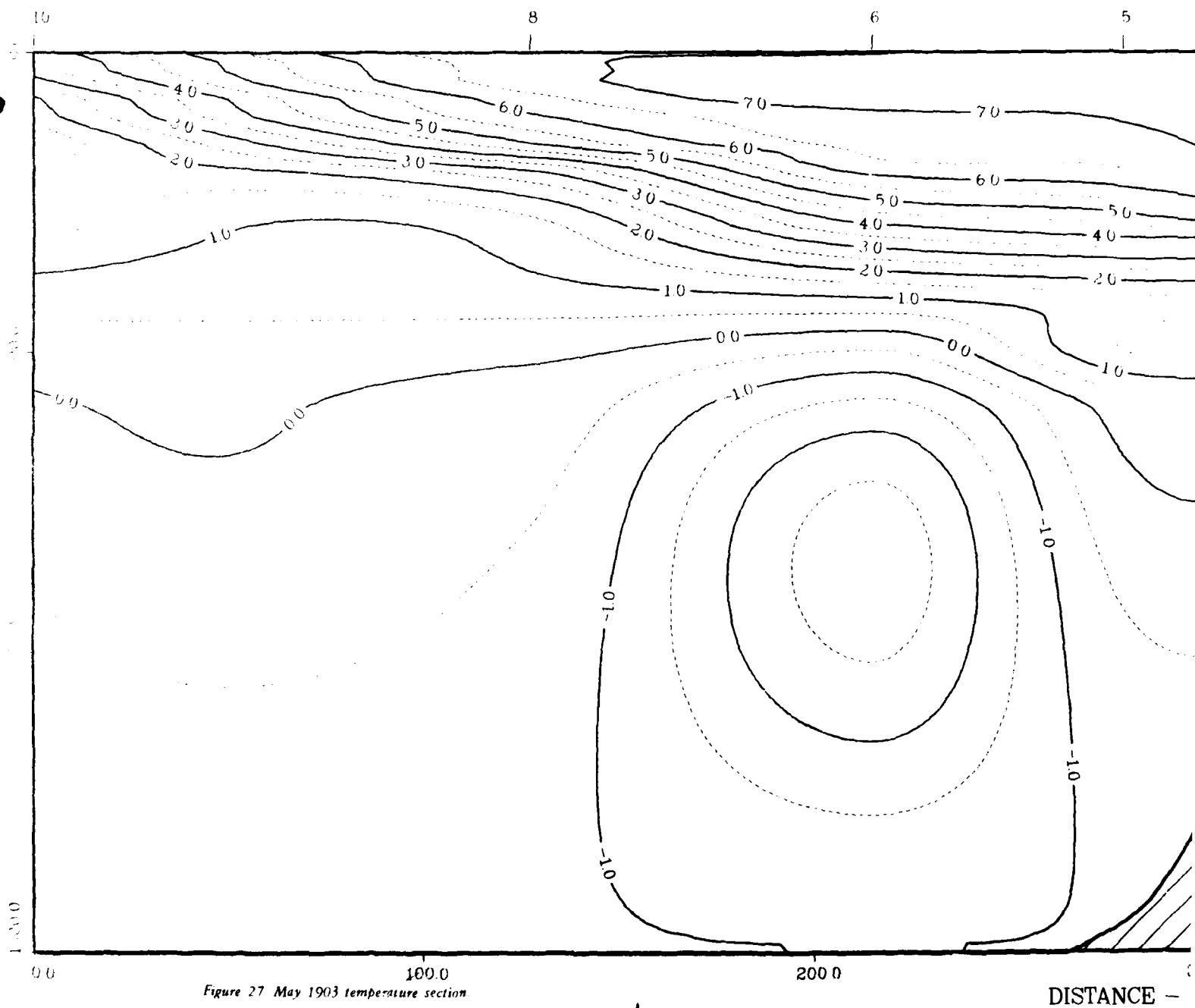
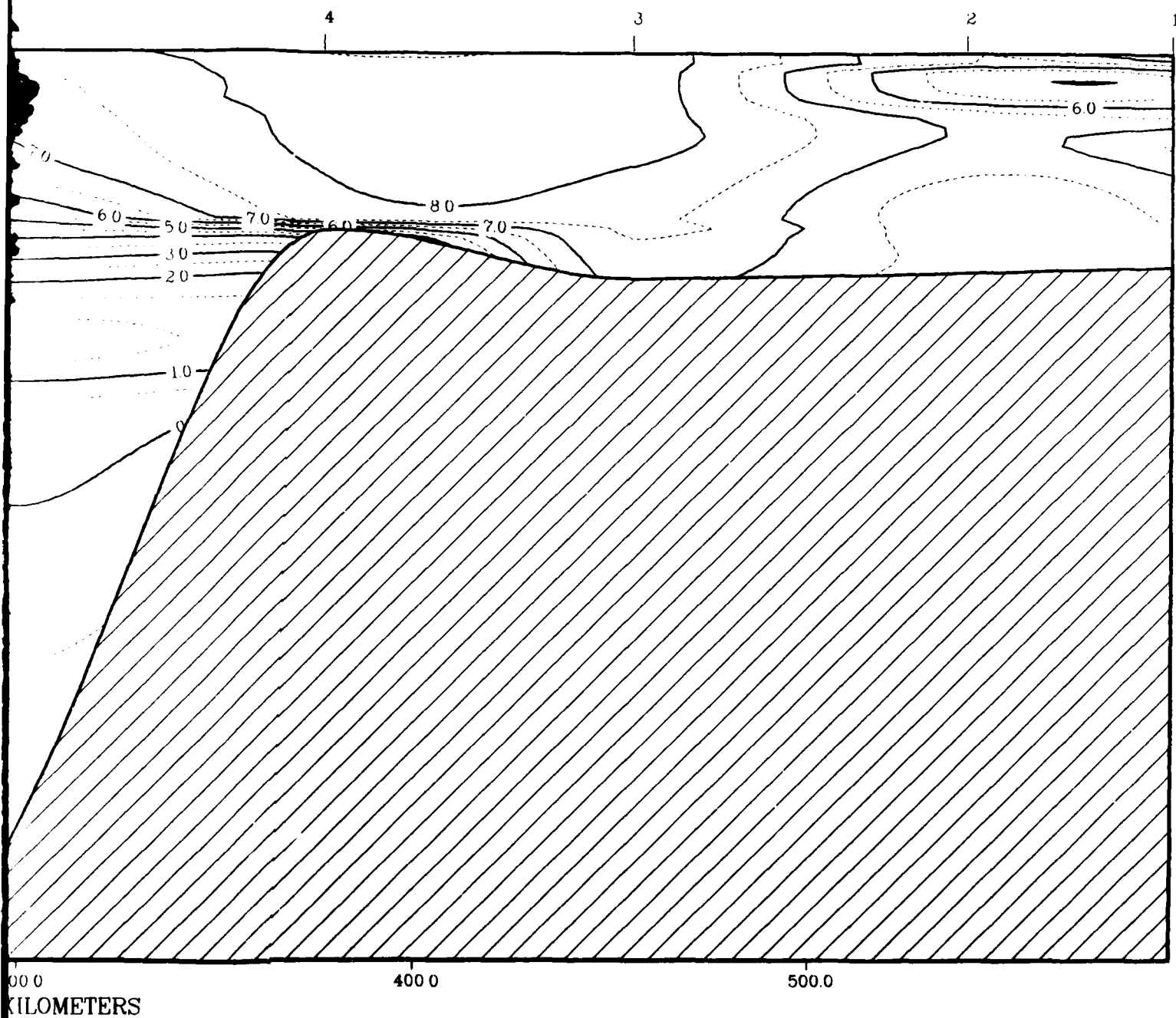


Figure 27 May 1903 temperature section

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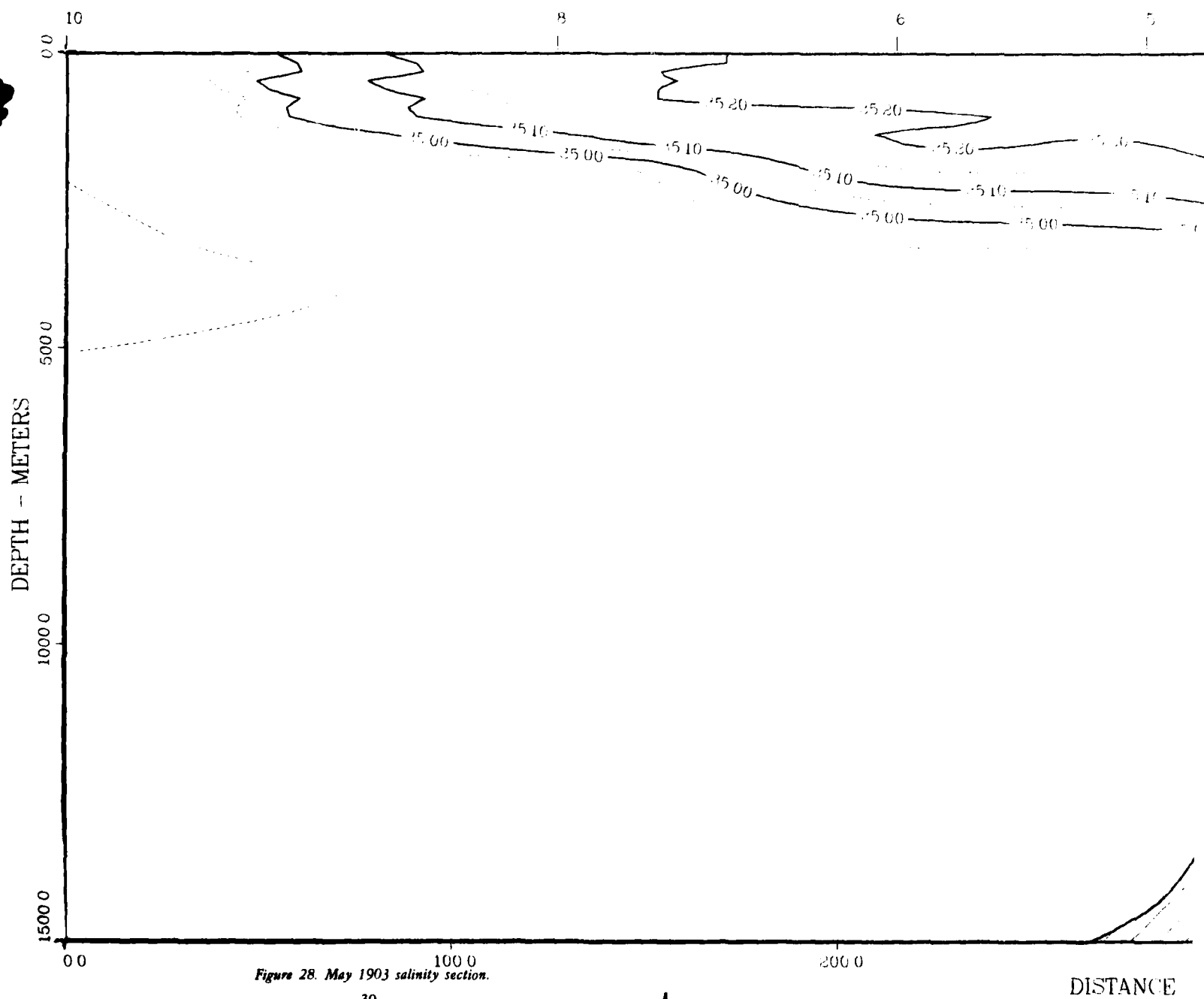
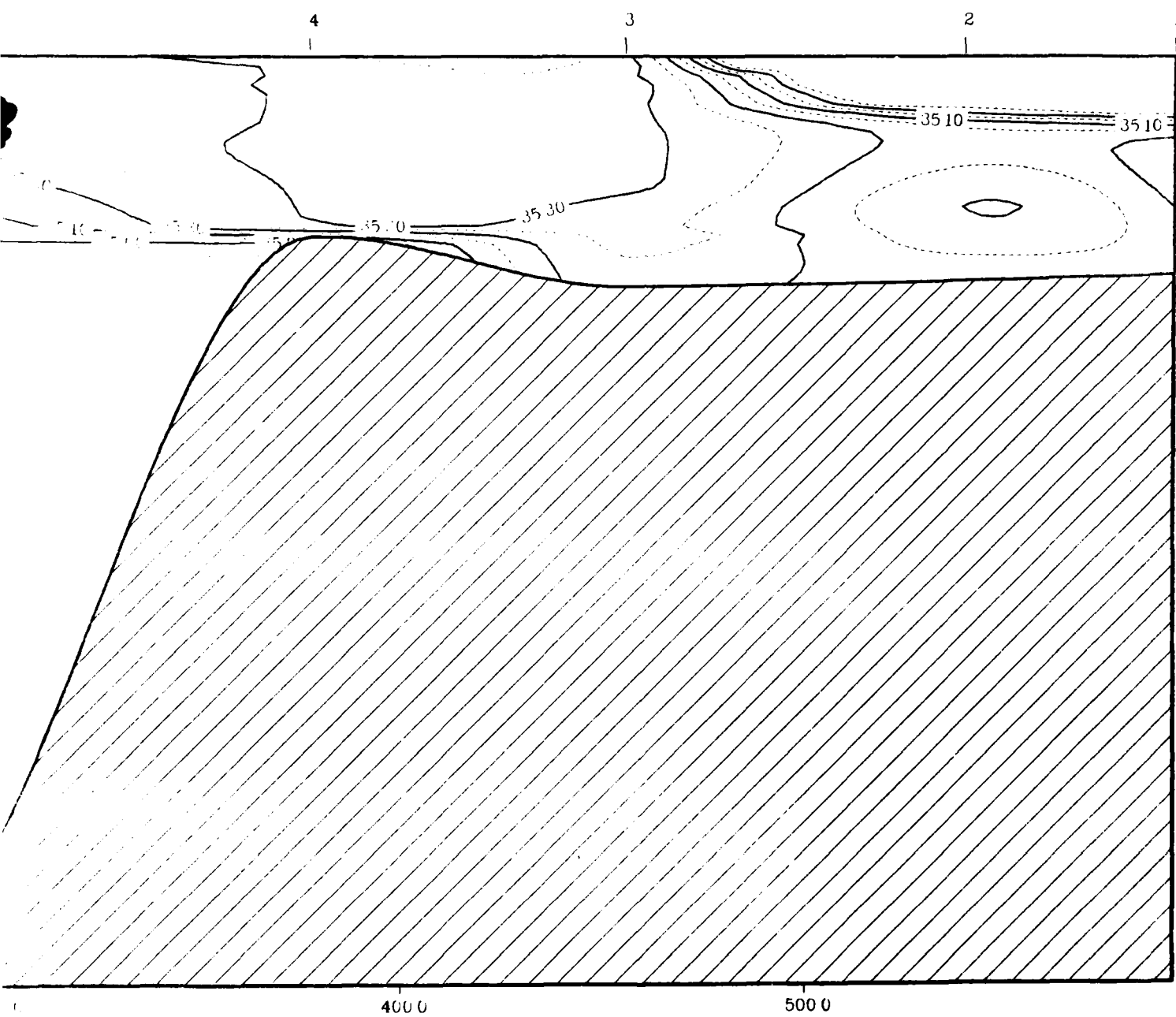


Figure 28. May 1903 salinity section.

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ICES\$:1903NOV.DAT

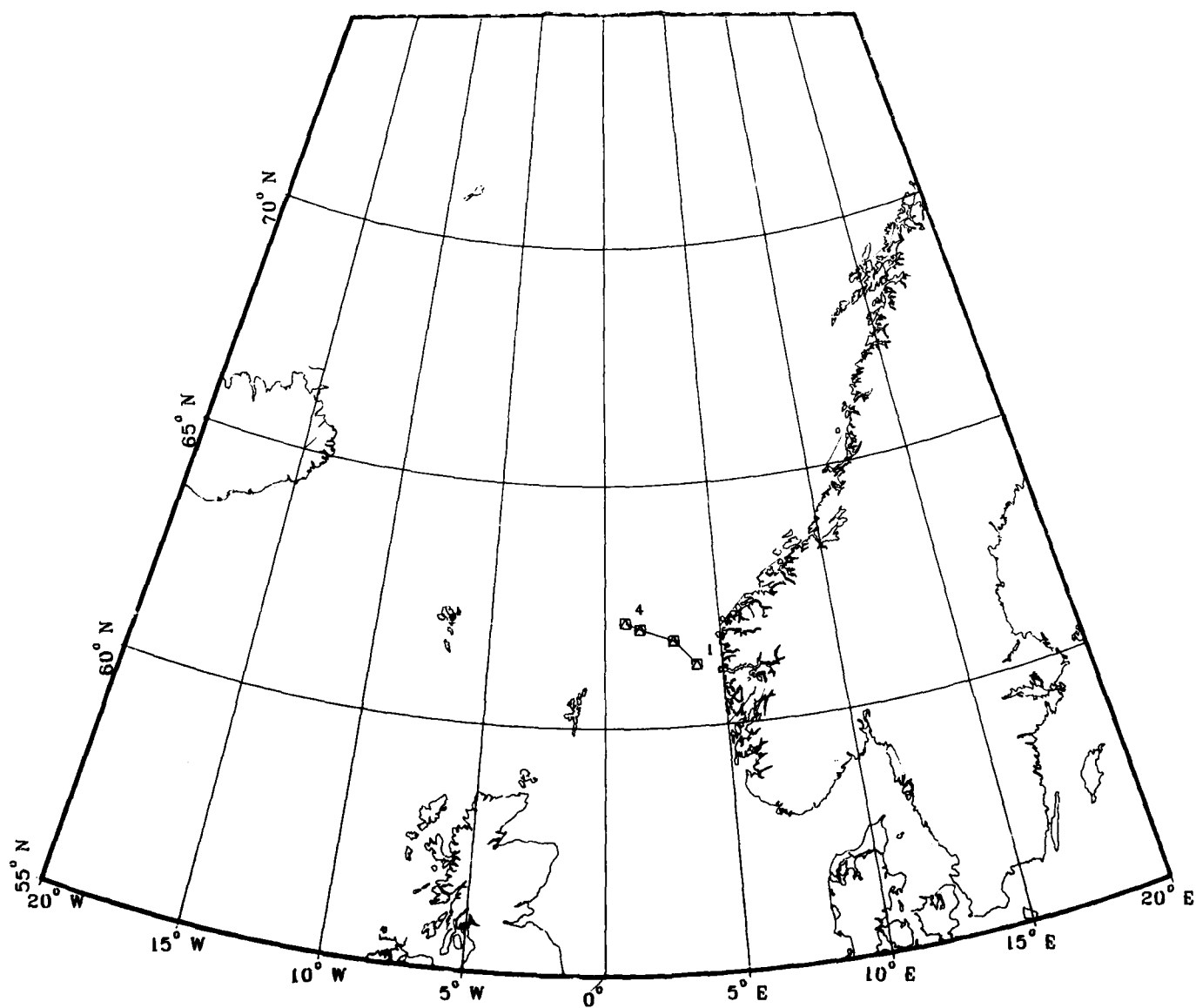


Figure 29. November 1903 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1903NOV.DAT
T/S PLOT

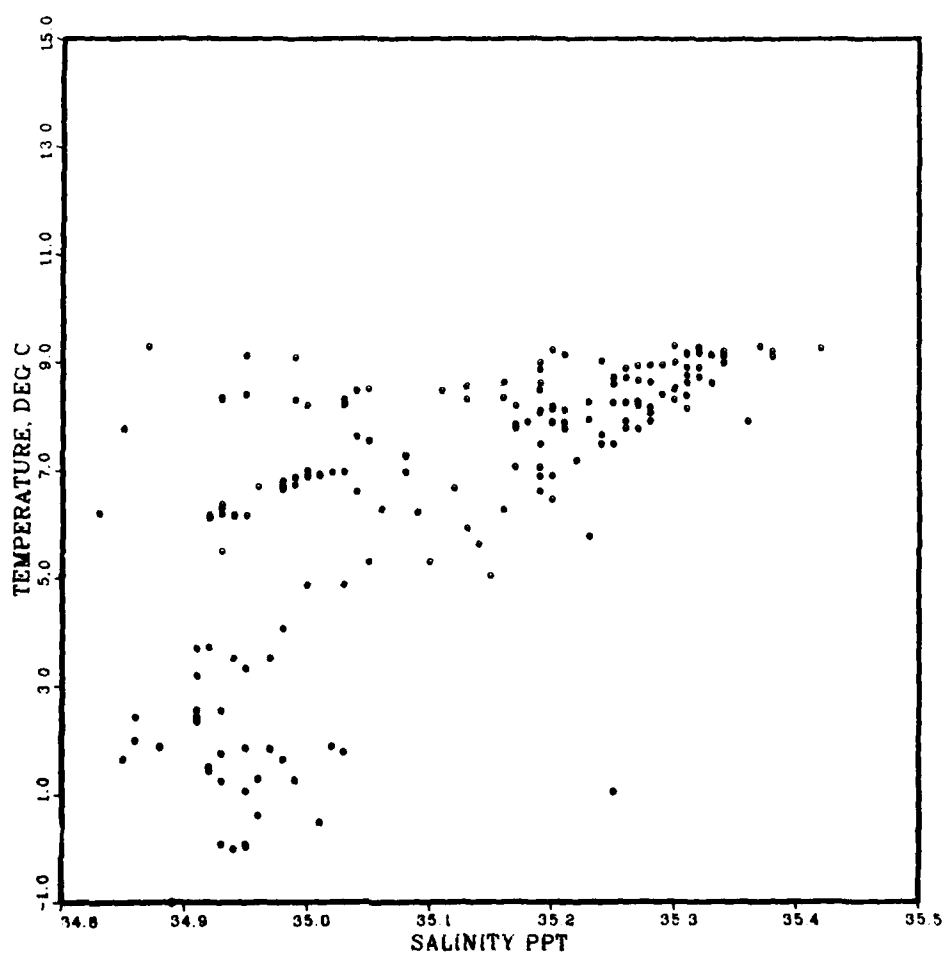


Figure 30. November 1903 temperature/salinity diagram.

SOGNEFJORD SECTION
FILE = ICES\$ 1903NOV.DAT 1
TEMPERATURE

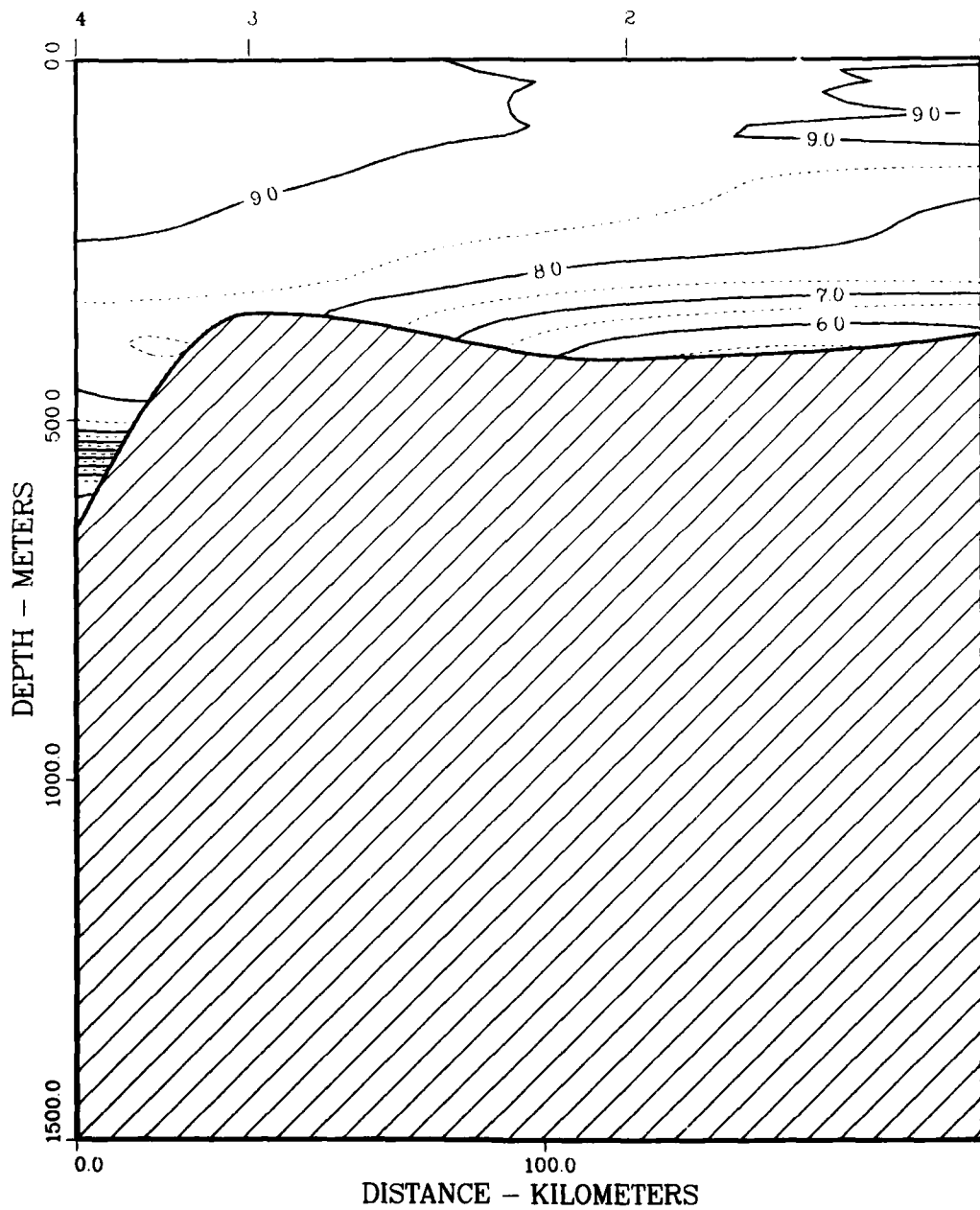


Figure 31. November 1903 temperature section.

SOGNEFJORD SECTION

FILE = ICES# 190. NOV DAT 1
SALINITY

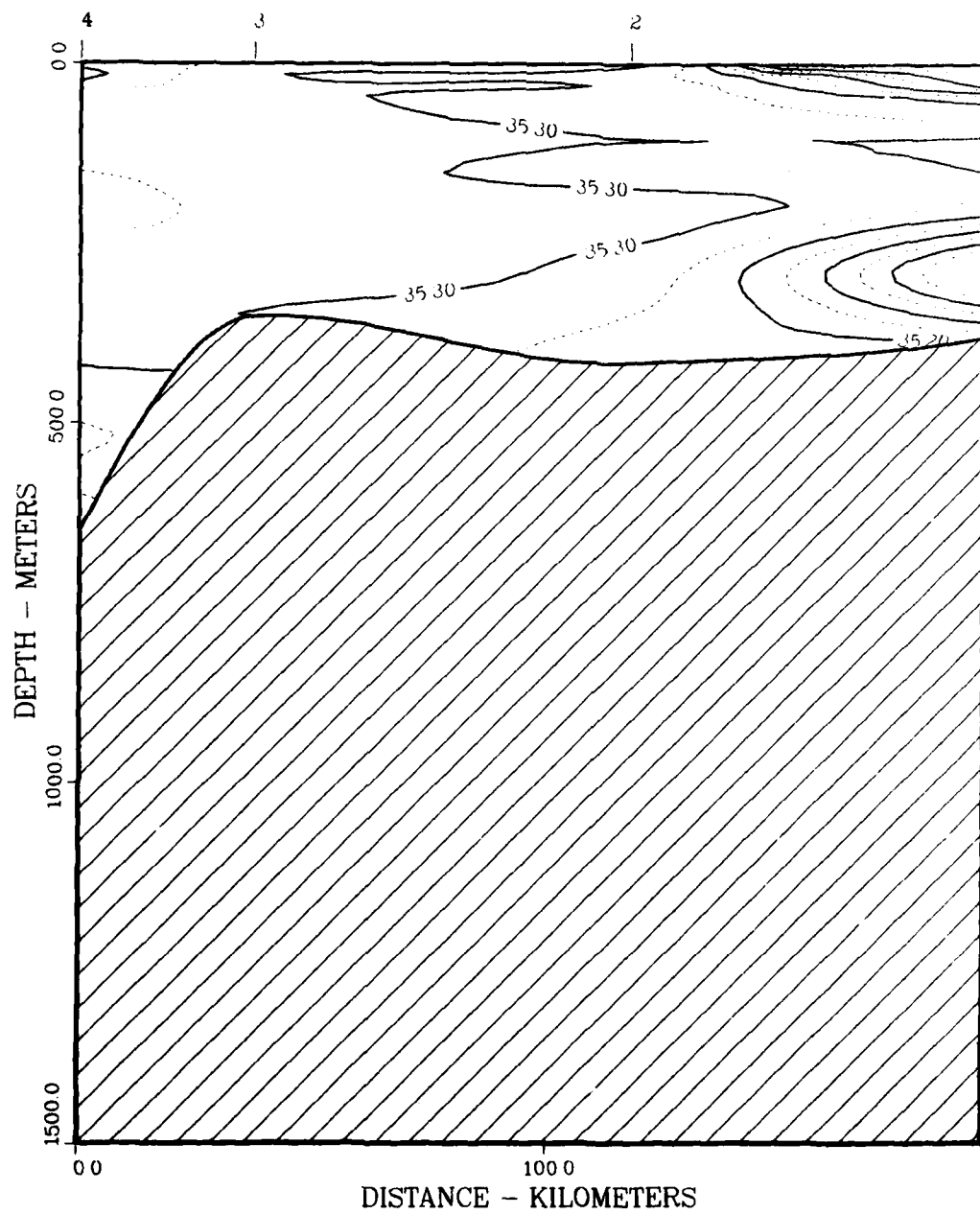


Figure 32. November 1903 salinity section.

ICES\$:1904BMA.DAT

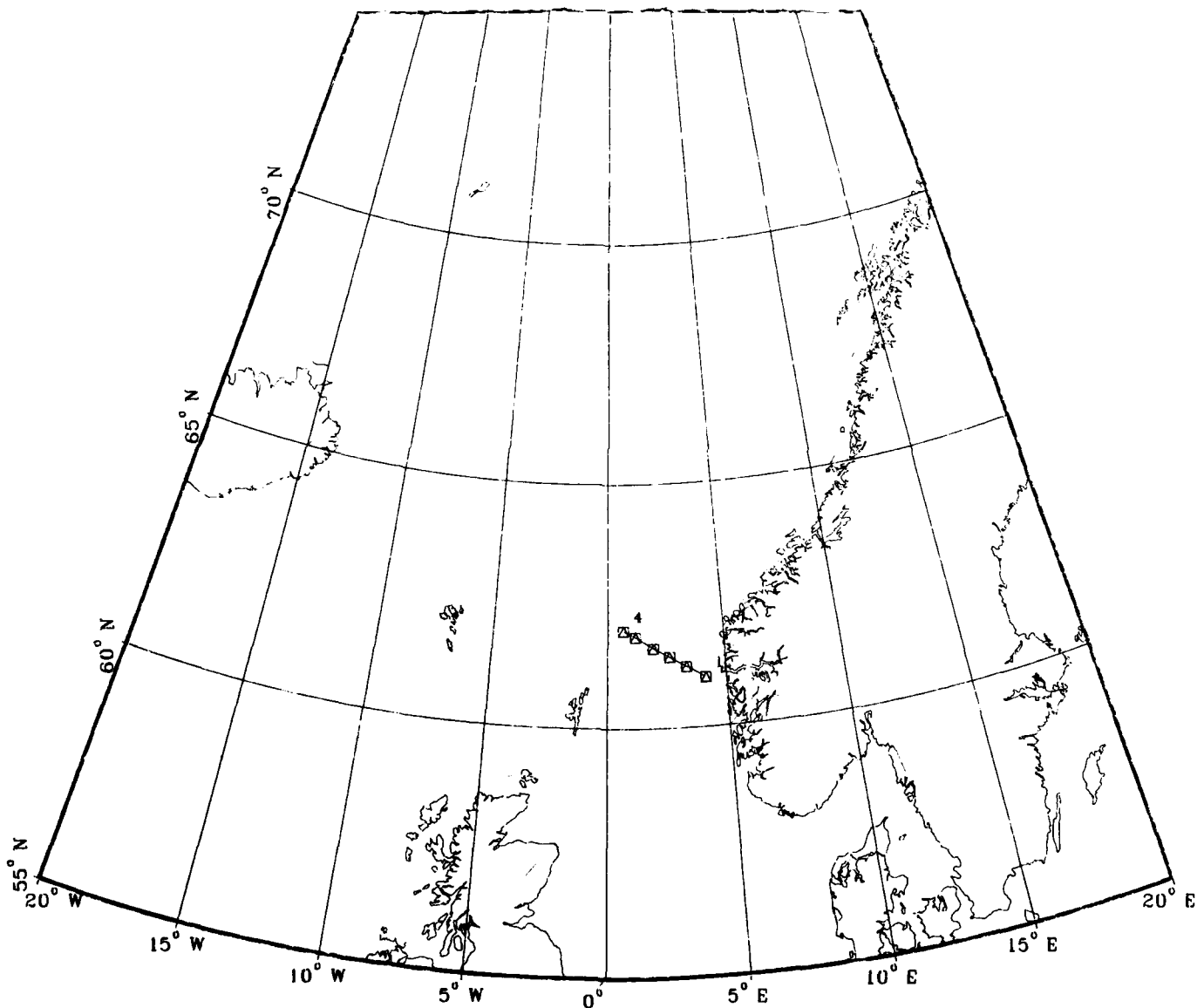


Figure 33. May 1904 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1904BMA.DAT
T/S PLOT

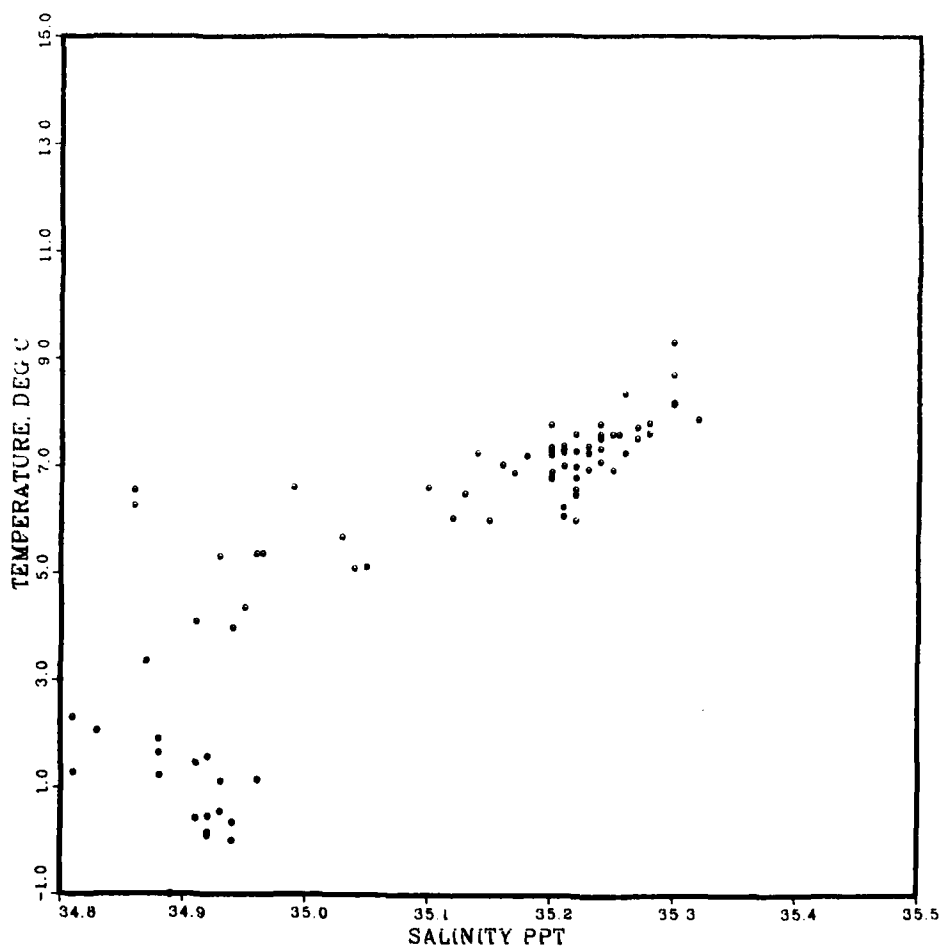


Figure 34. May 1904 temperature/salinity diagram.

SOGNEFJORD SECTION

FILE = ICES\$1904BMA.DAT.1
TEMPERATURE

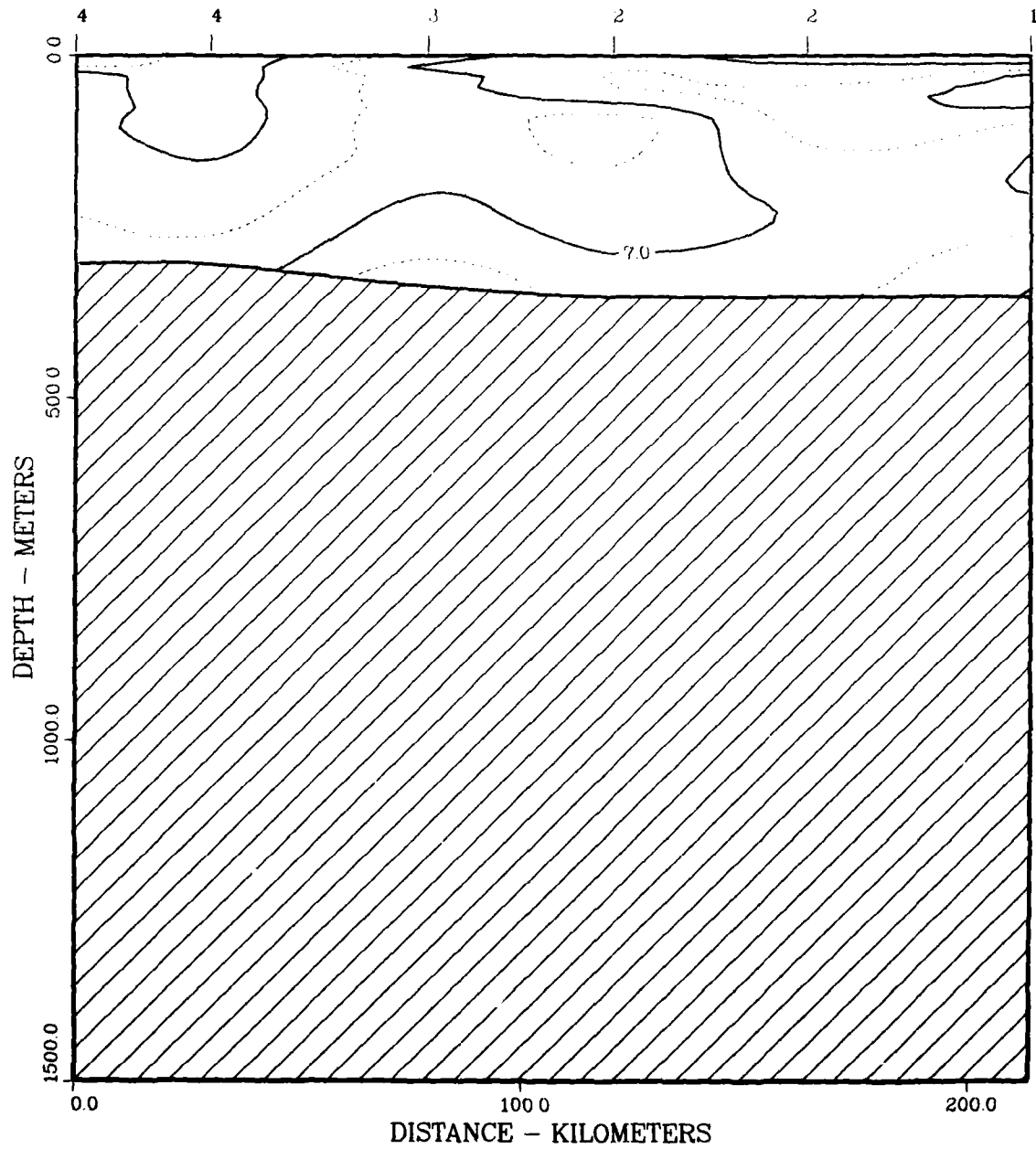


Figure 35. May 1904 temperature section.

SOGNEFJORD SECTION
 FILE = ICES 1904BMA DAT 1
 SALINITY

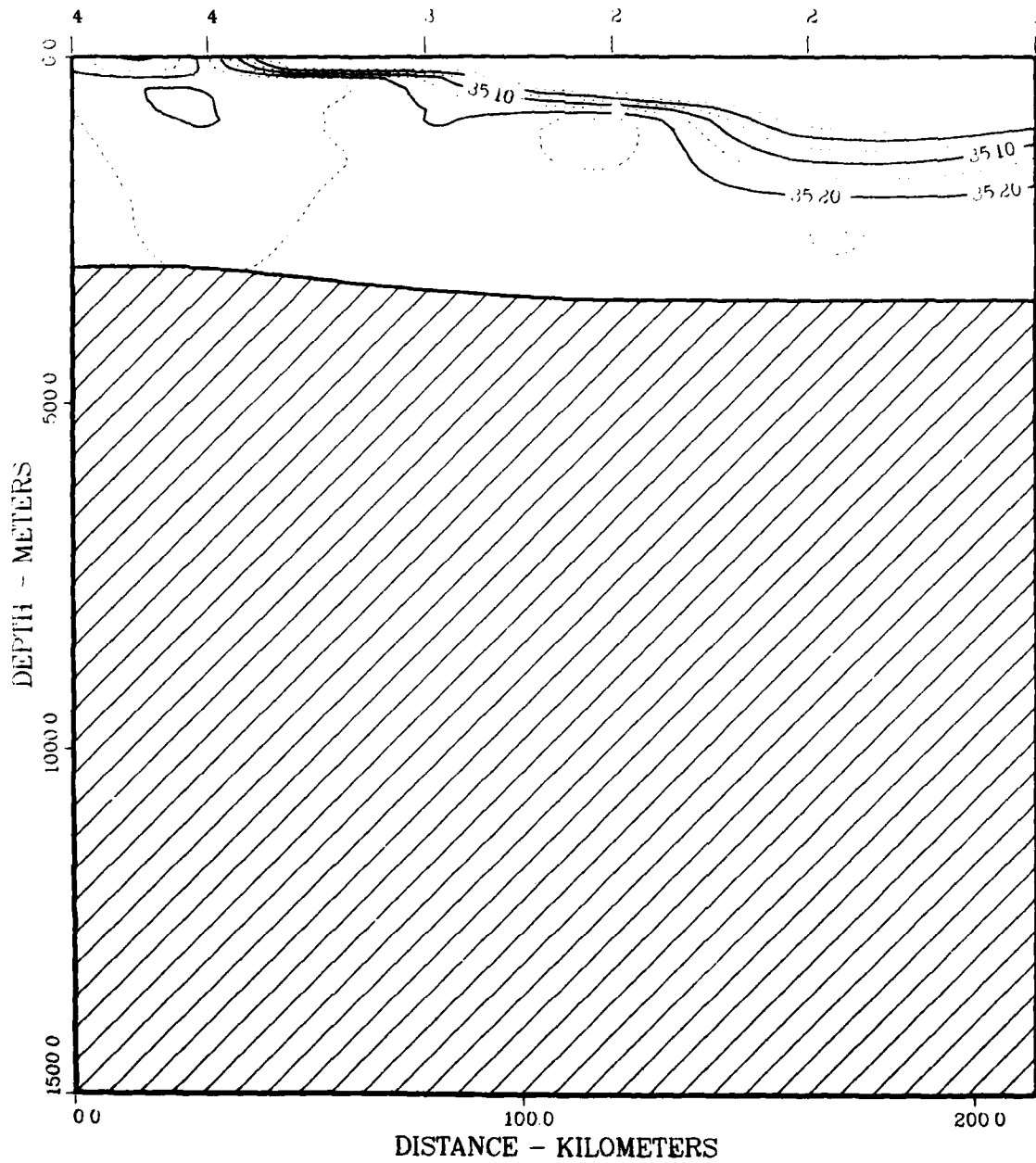


Figure 36. May 1904 salinity section.

ICES\$:1914MAY.DAT

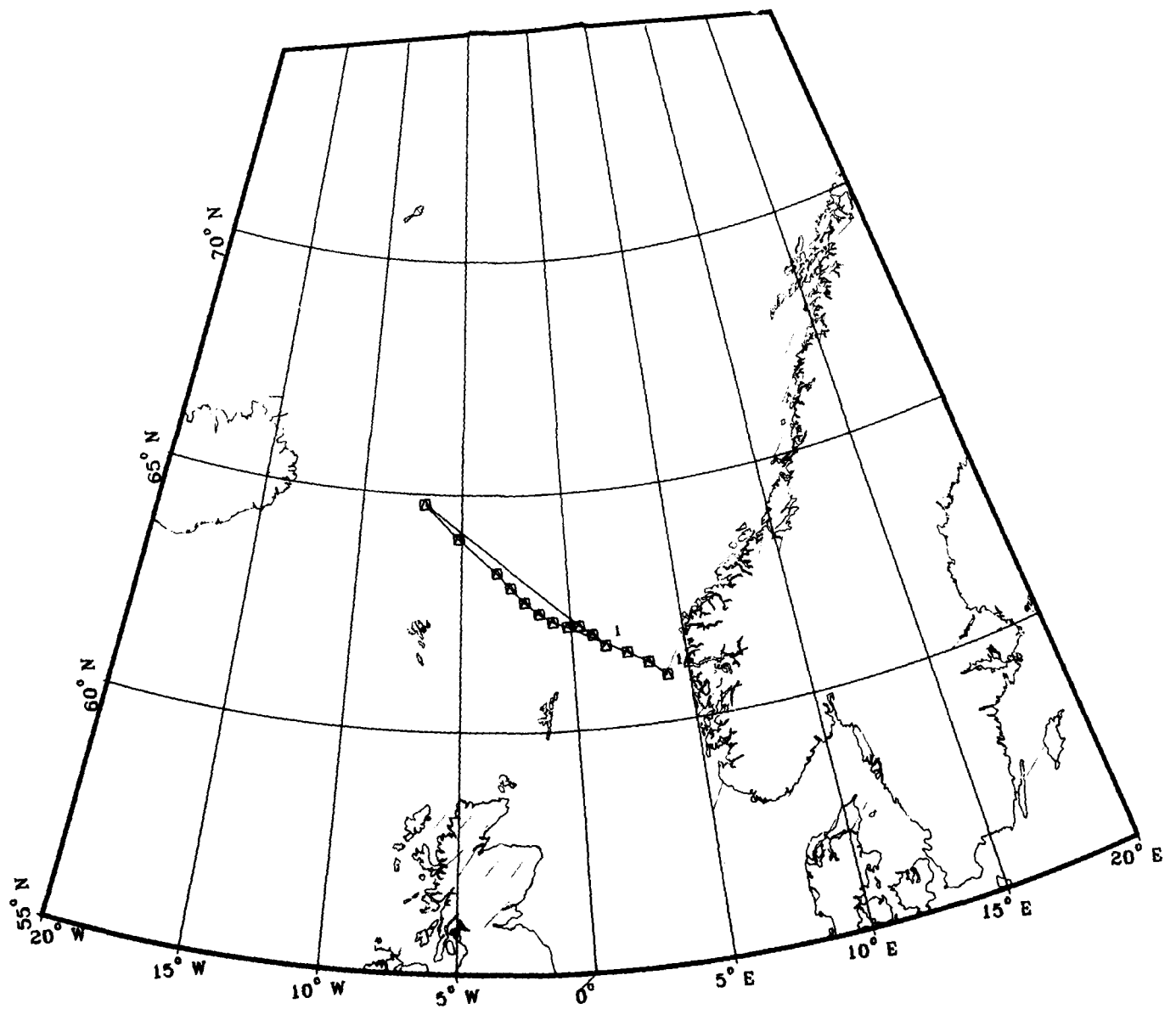


Figure 37. May 1914 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1914MAY.DAT
T/S PLOT

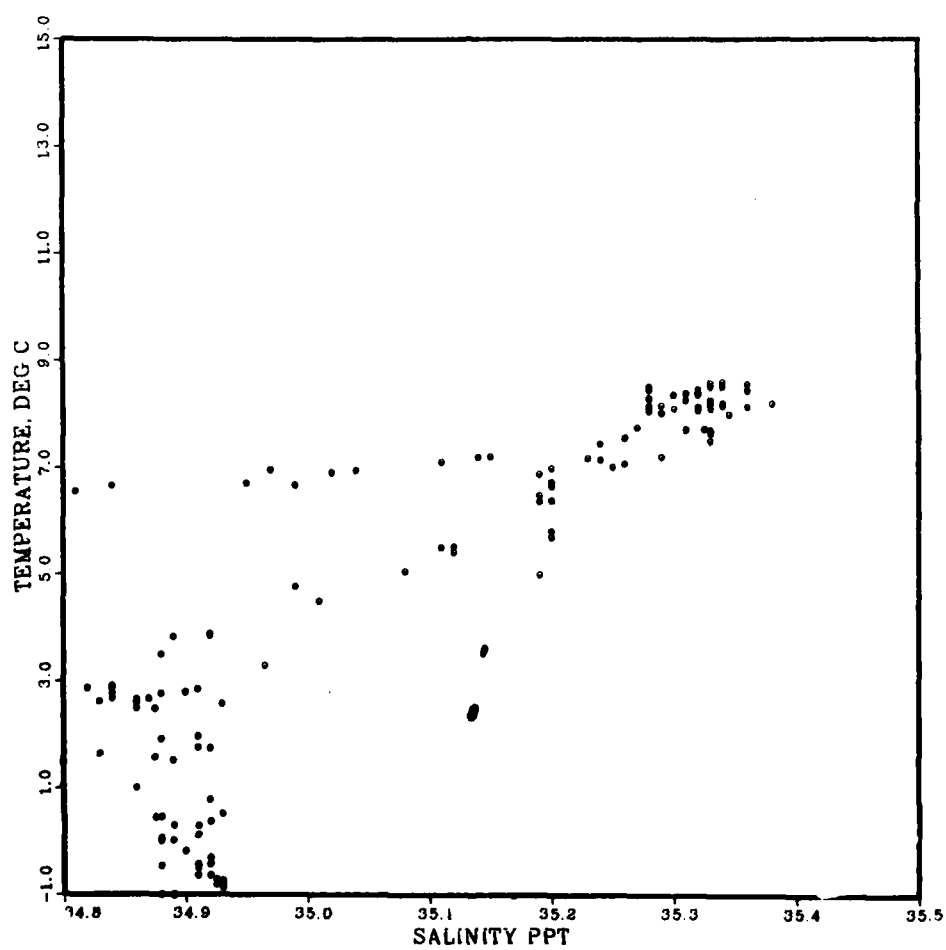


Figure 38. May 1914 temperature/salinity diagram.

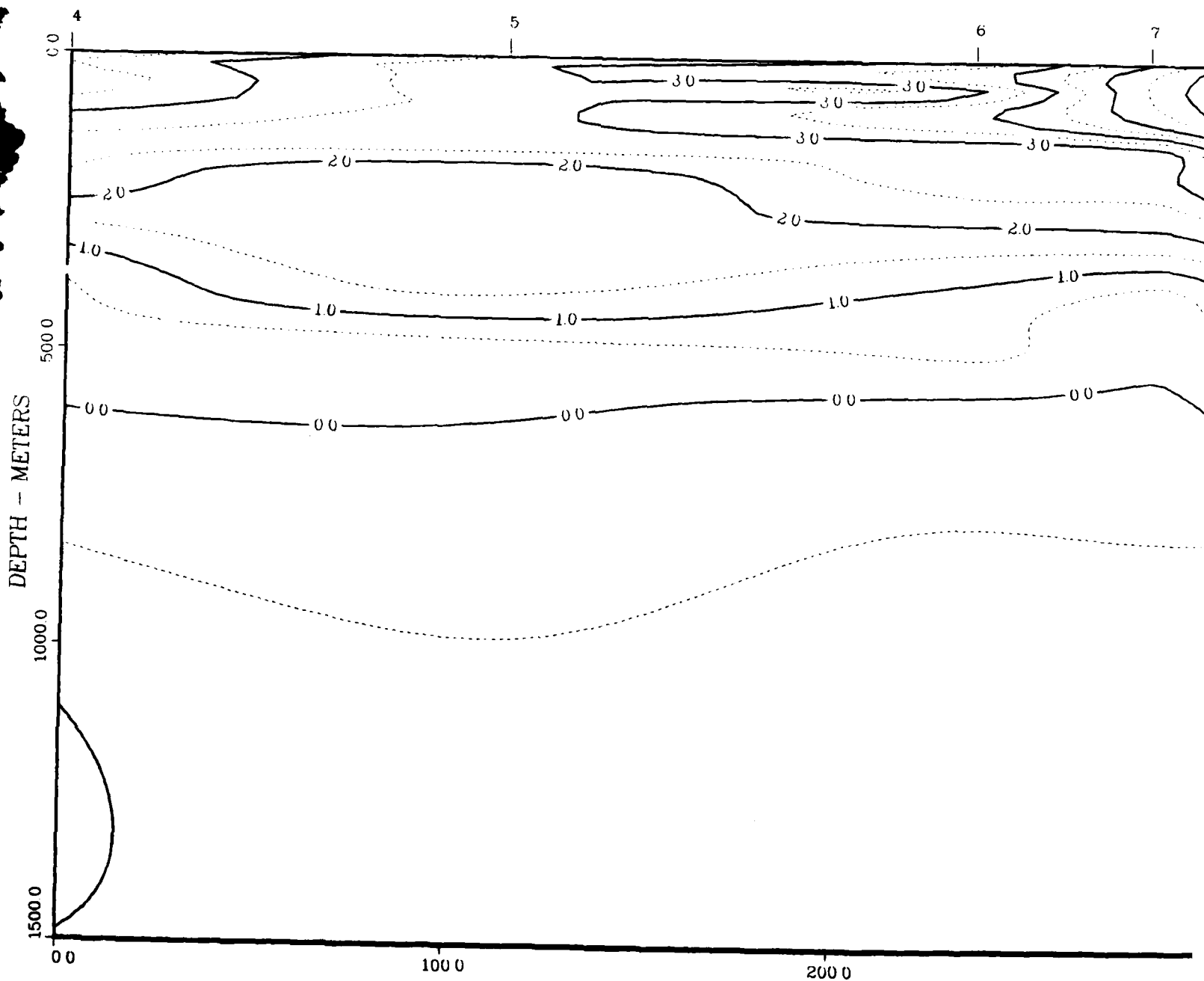
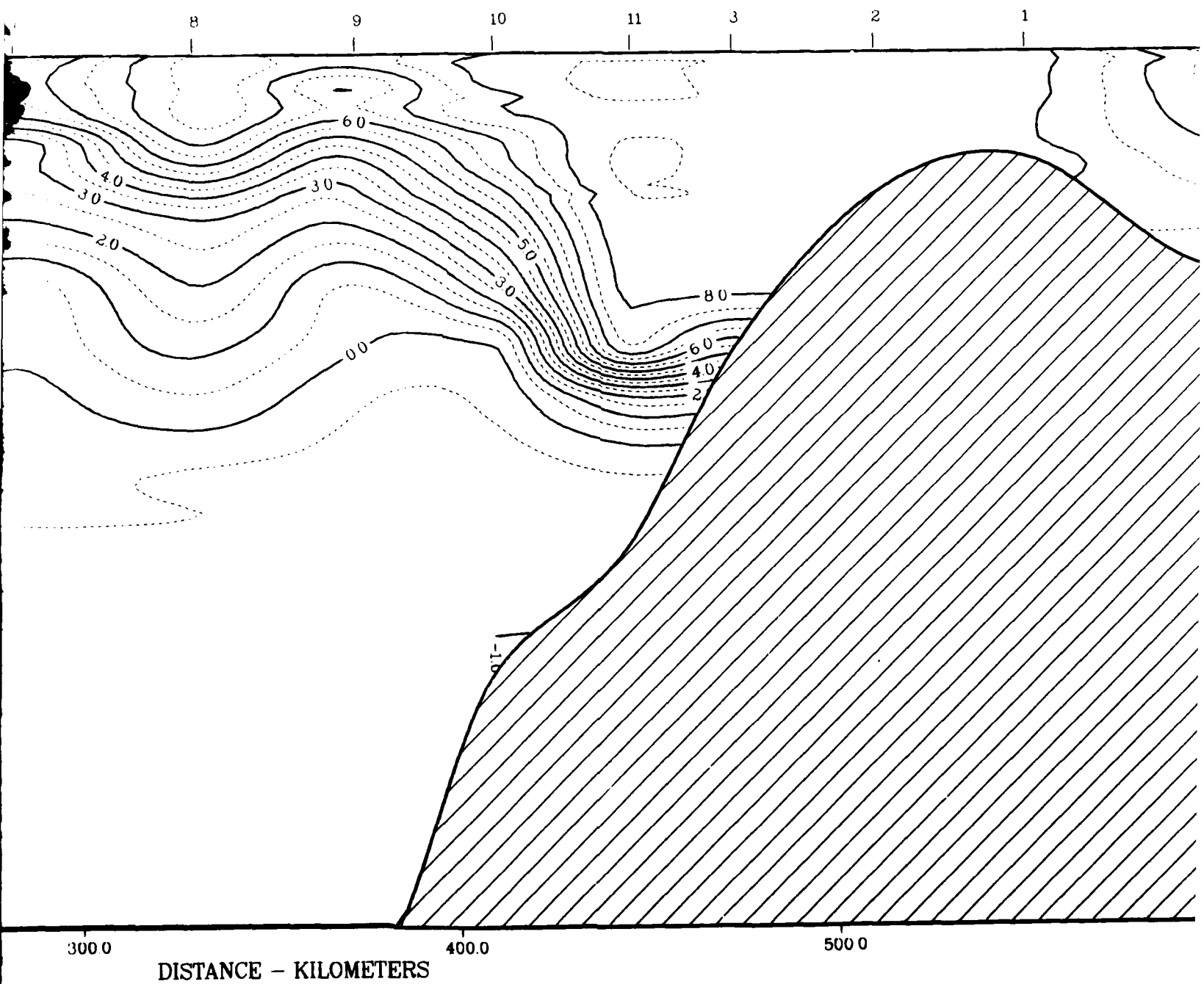
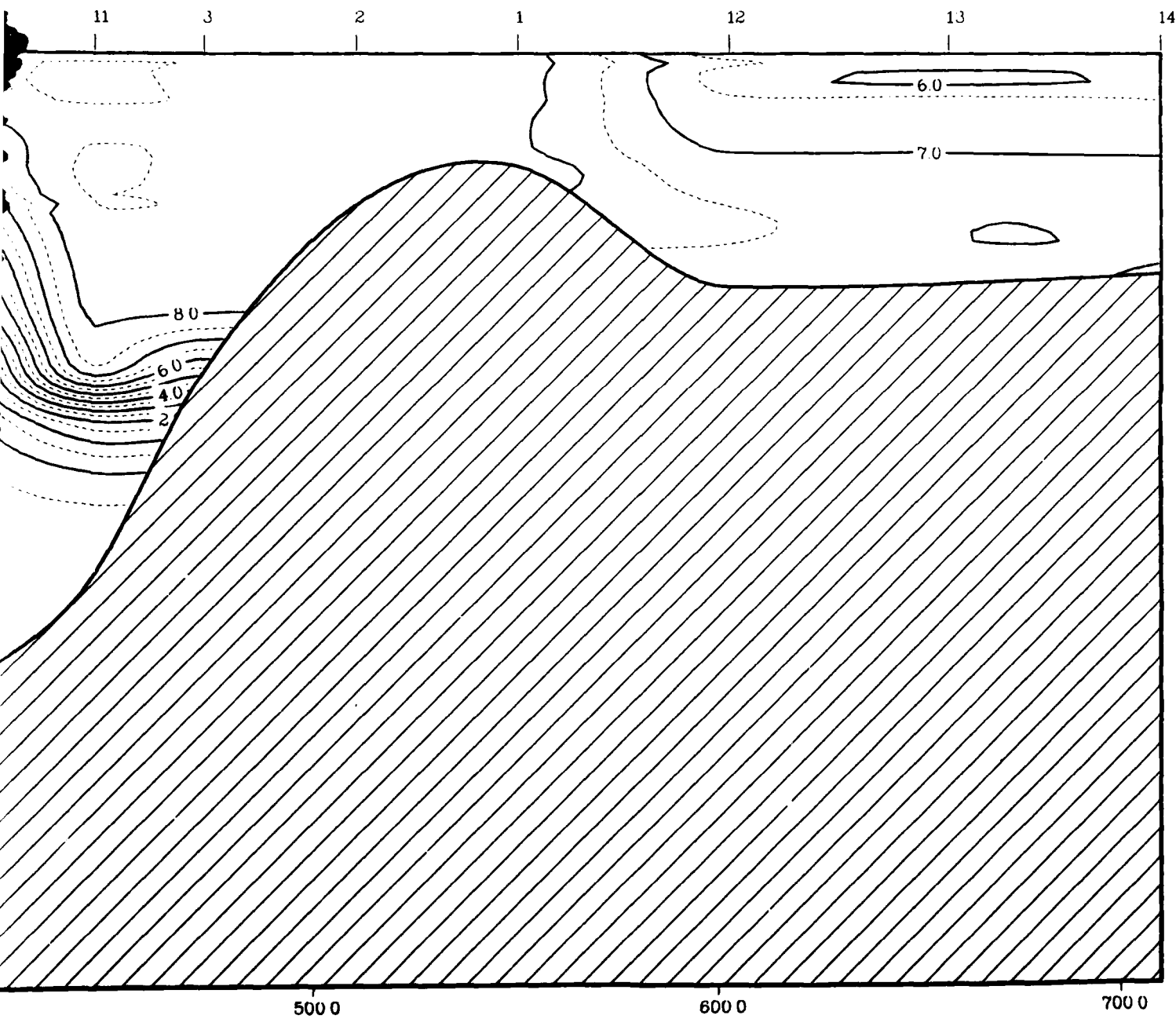


Figure 39. May 1914 temperature section.

SOGNEFJORD SECTION
FILE = ICES# 1914MAY DAT 1
TEMPERATURE





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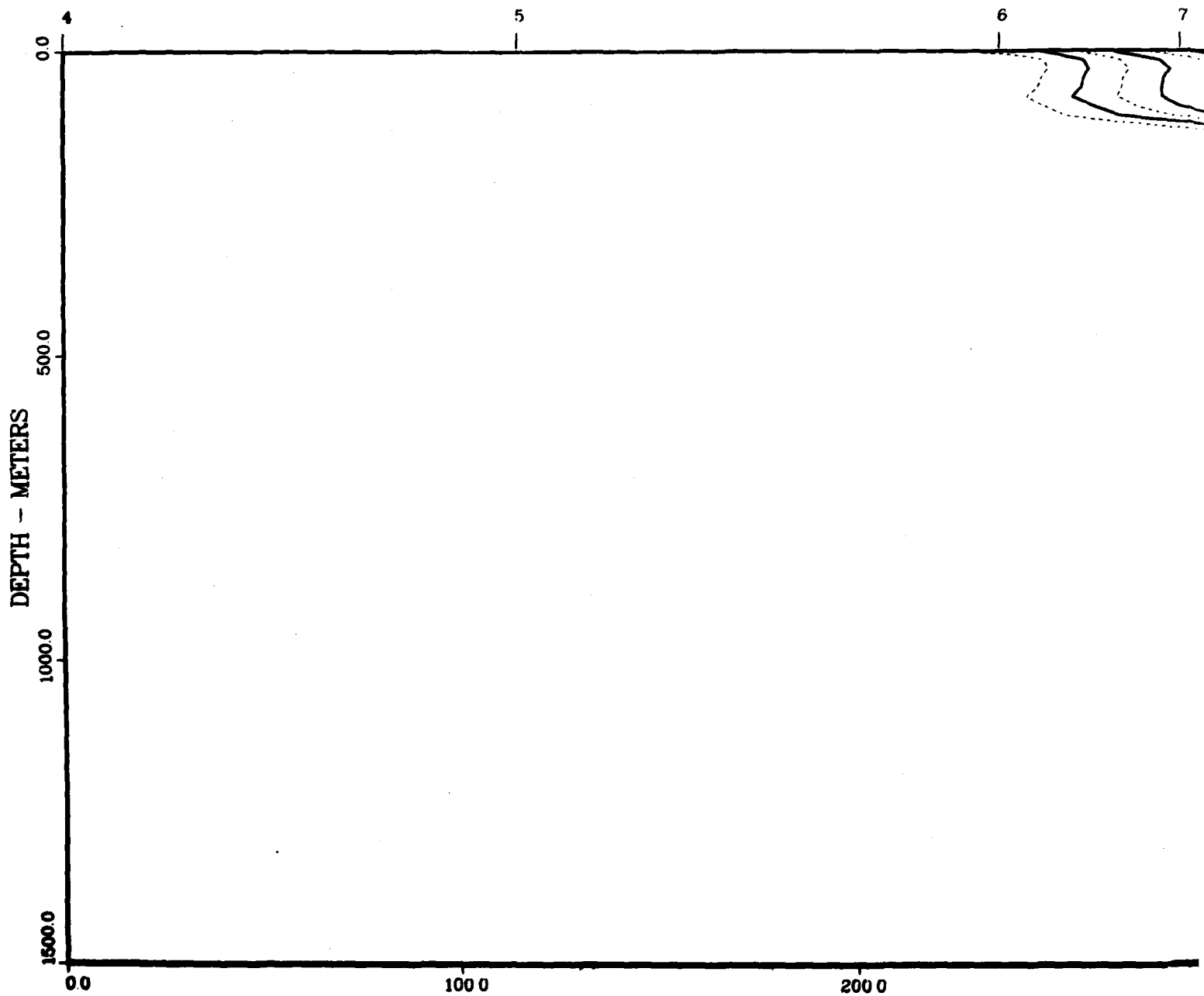
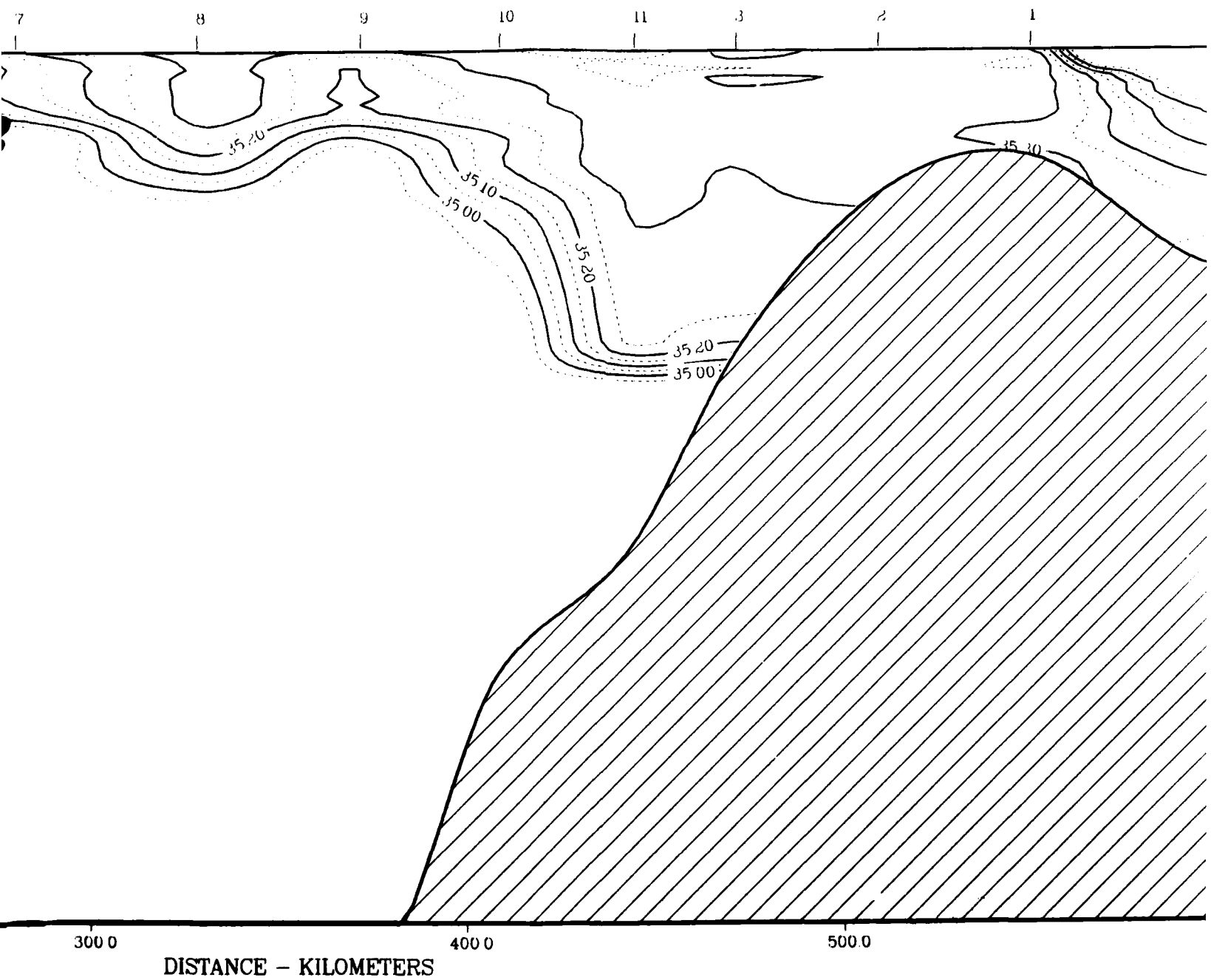
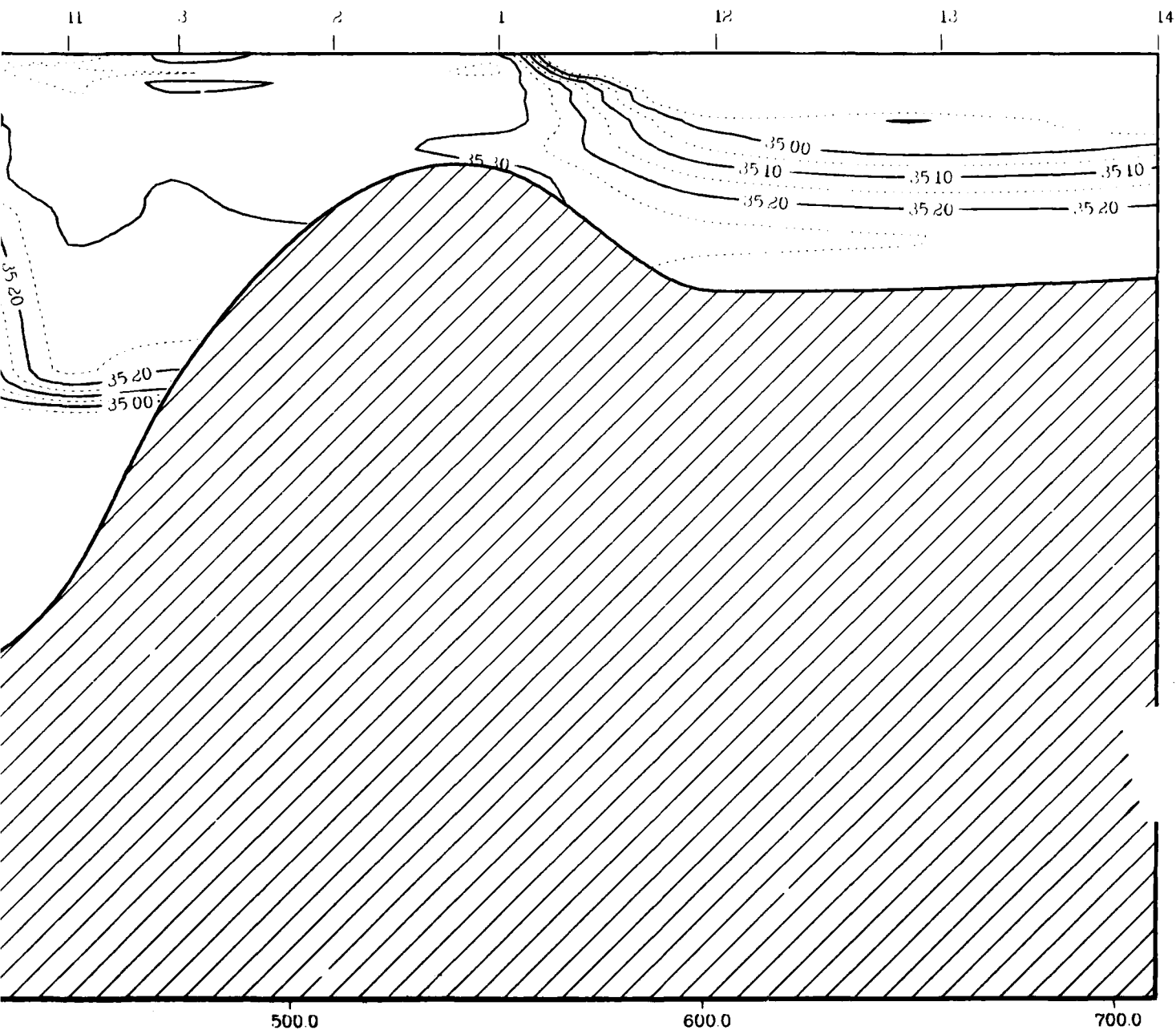


Figure 40. May 1914 salinity section.

SOGNEFJORD SECTION
FILE = ICES 1914 MAY DAT 1
SALINITY





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ICES\$:1925JUN.DAT

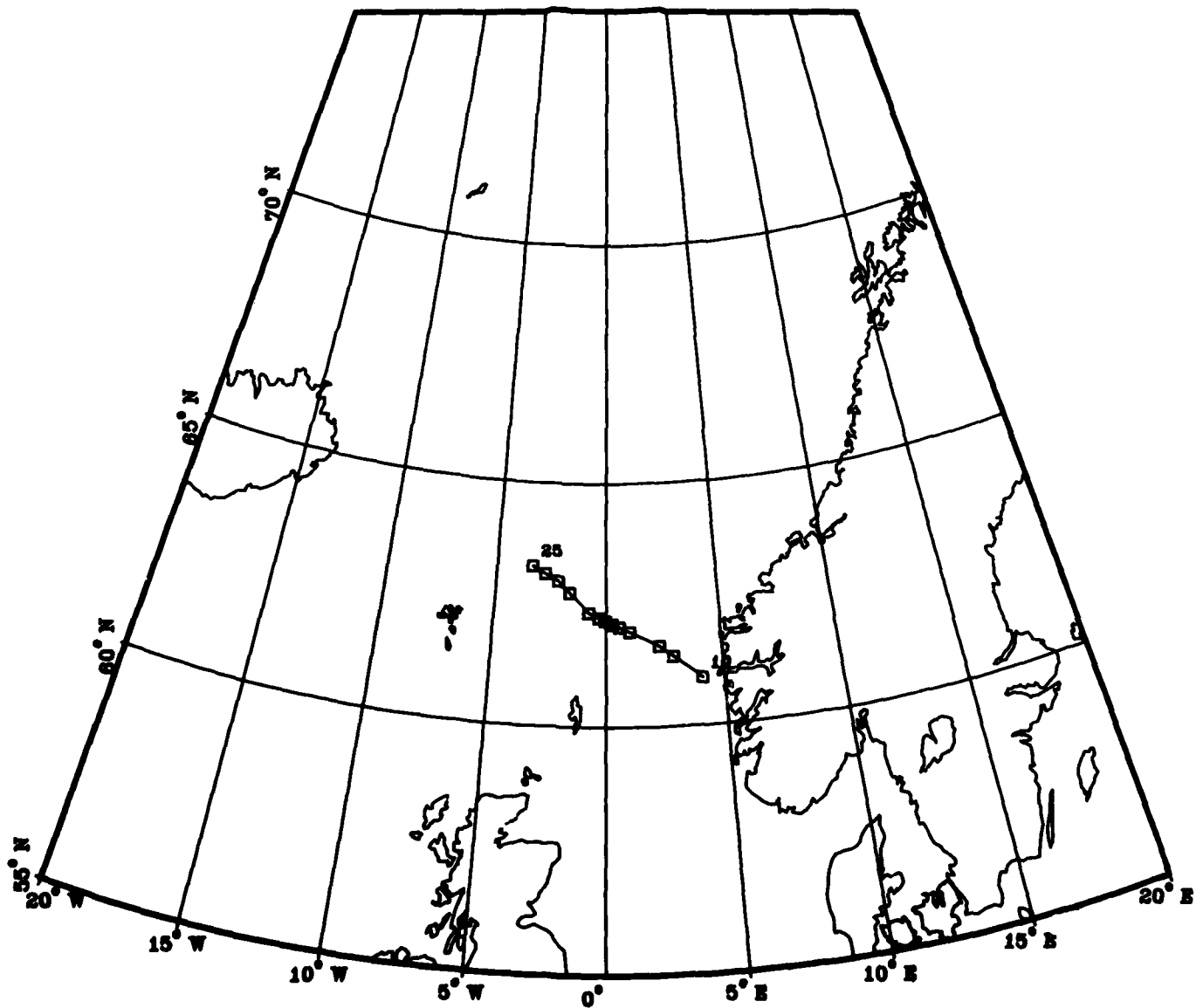


Figure 41. June 1925 station positions.

SOGNEFJORD SECTION
FILE = ICES\$:1925JUN.DAT
T/S PLOT

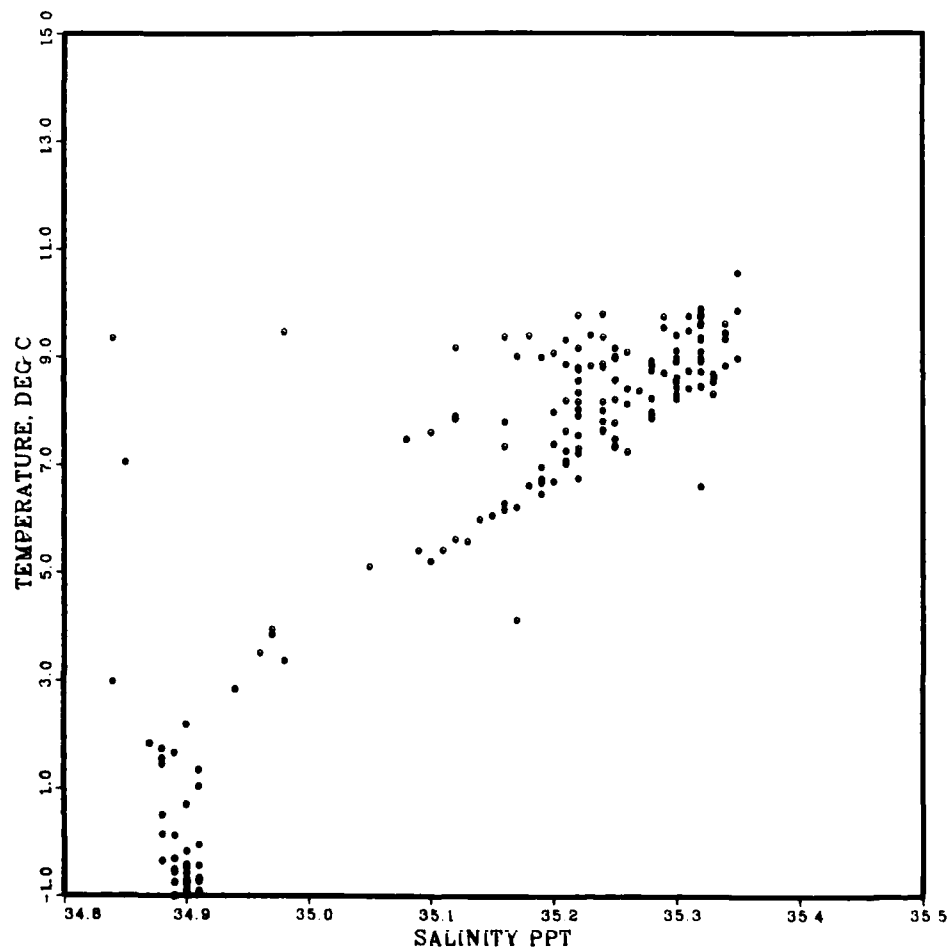


Figure 42. June 1925 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$1925JUN.DAT
 TEMPERATURE

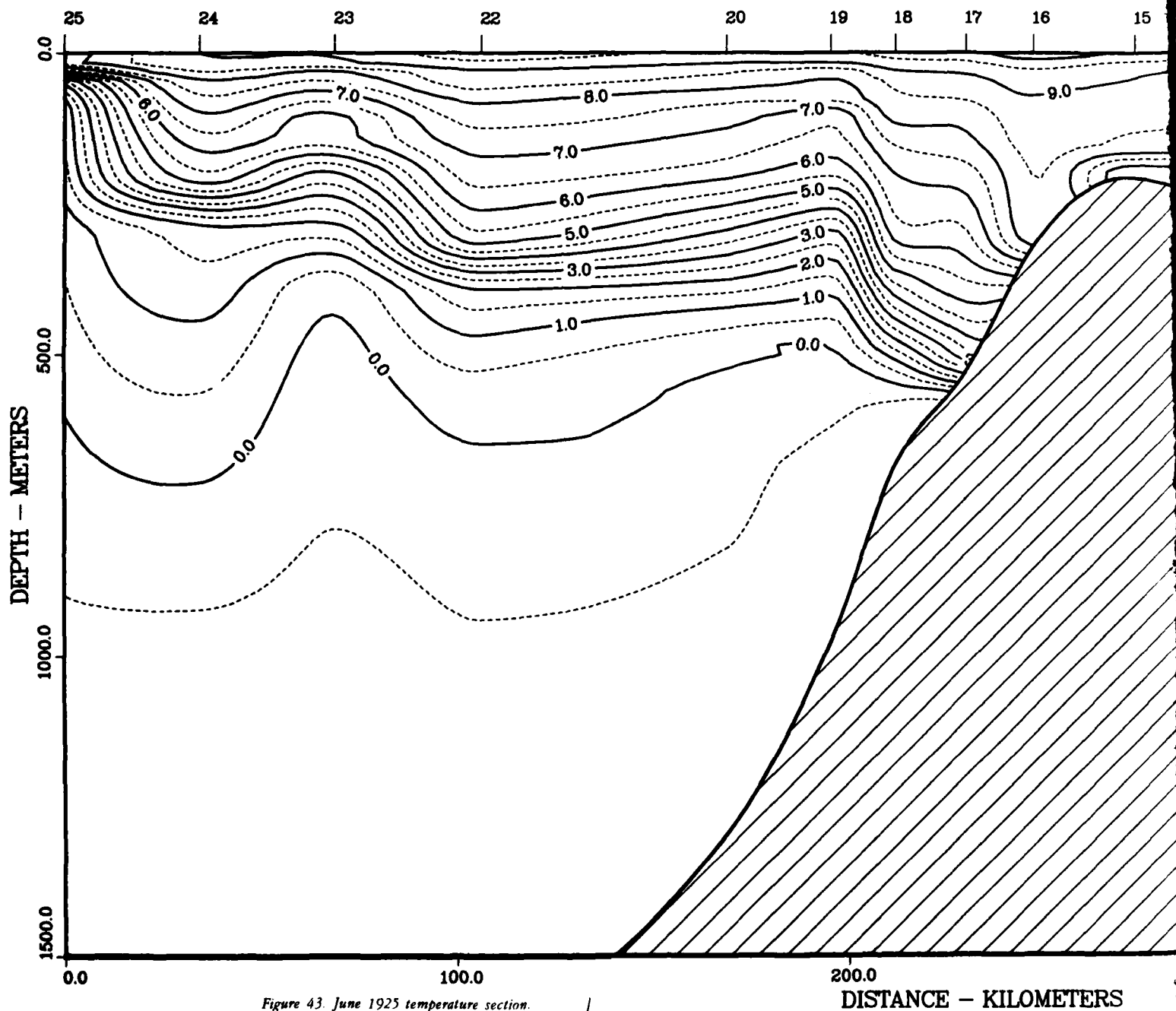
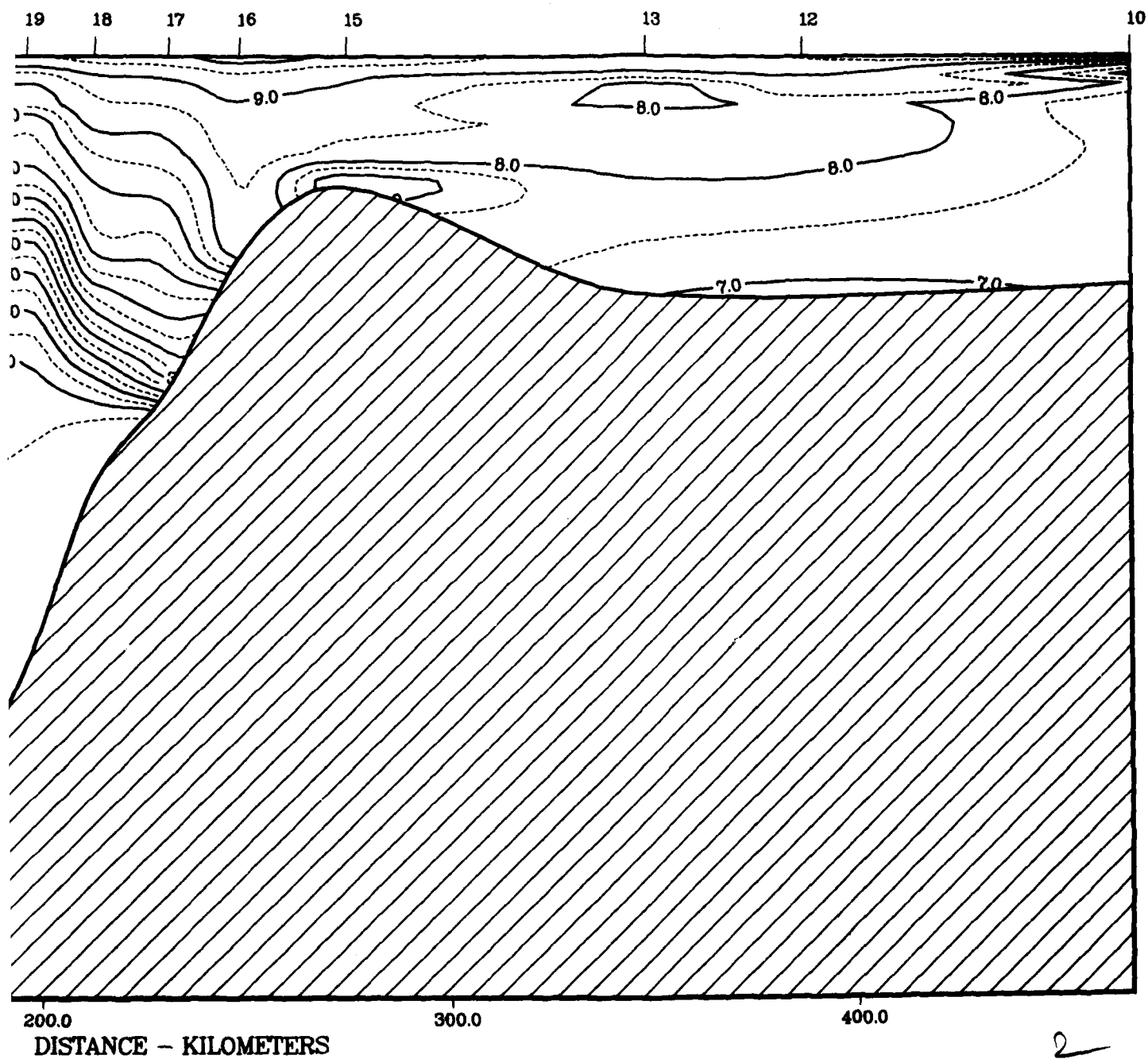


Figure 43. June 1925 temperature section.

FILE = ICES\$:1925JUN.DAT
TEMPERATURE



SOGNEFJORD SECTION
 FILE = ICES4:1925JUN.DAT
 SALINITY

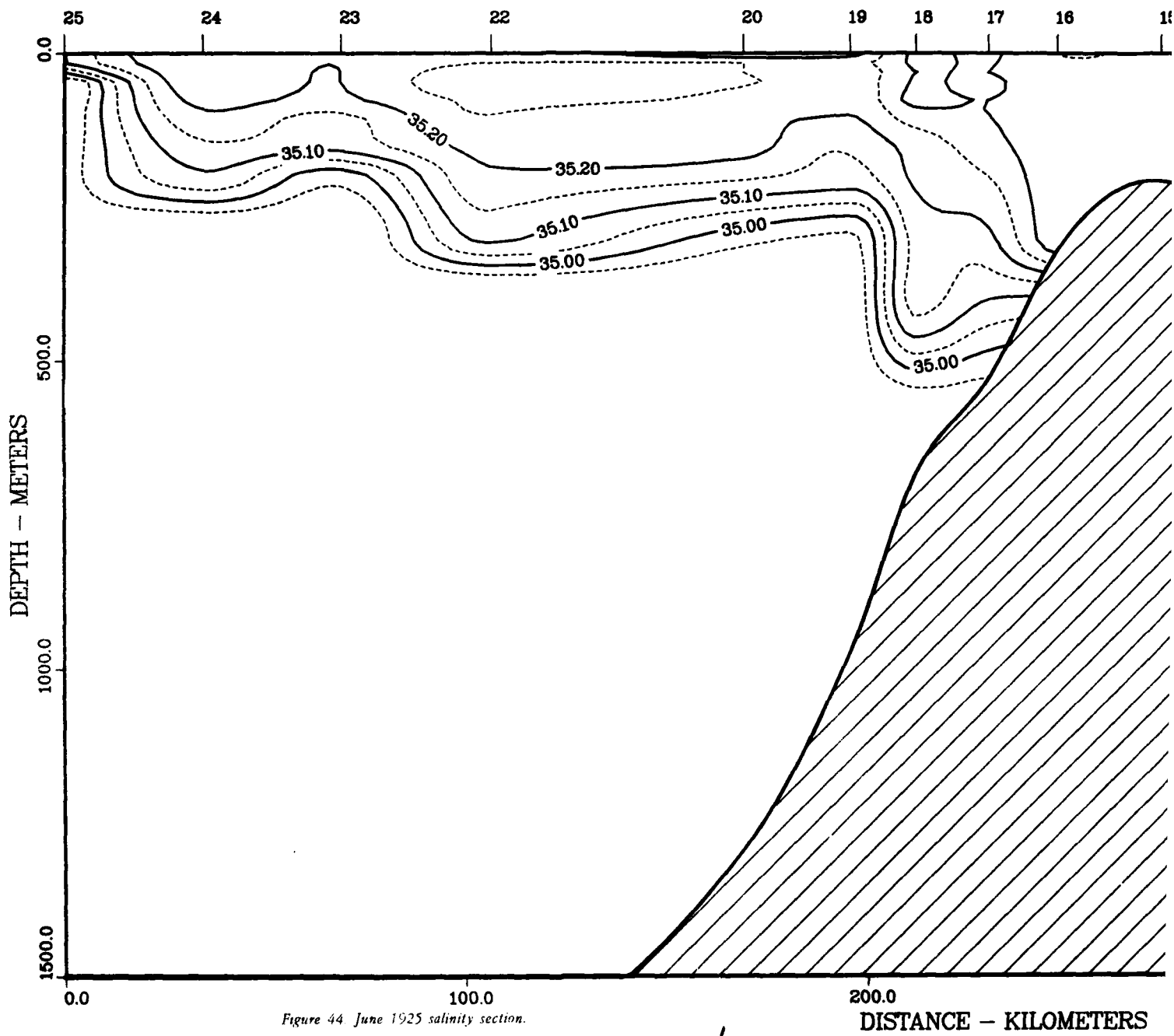
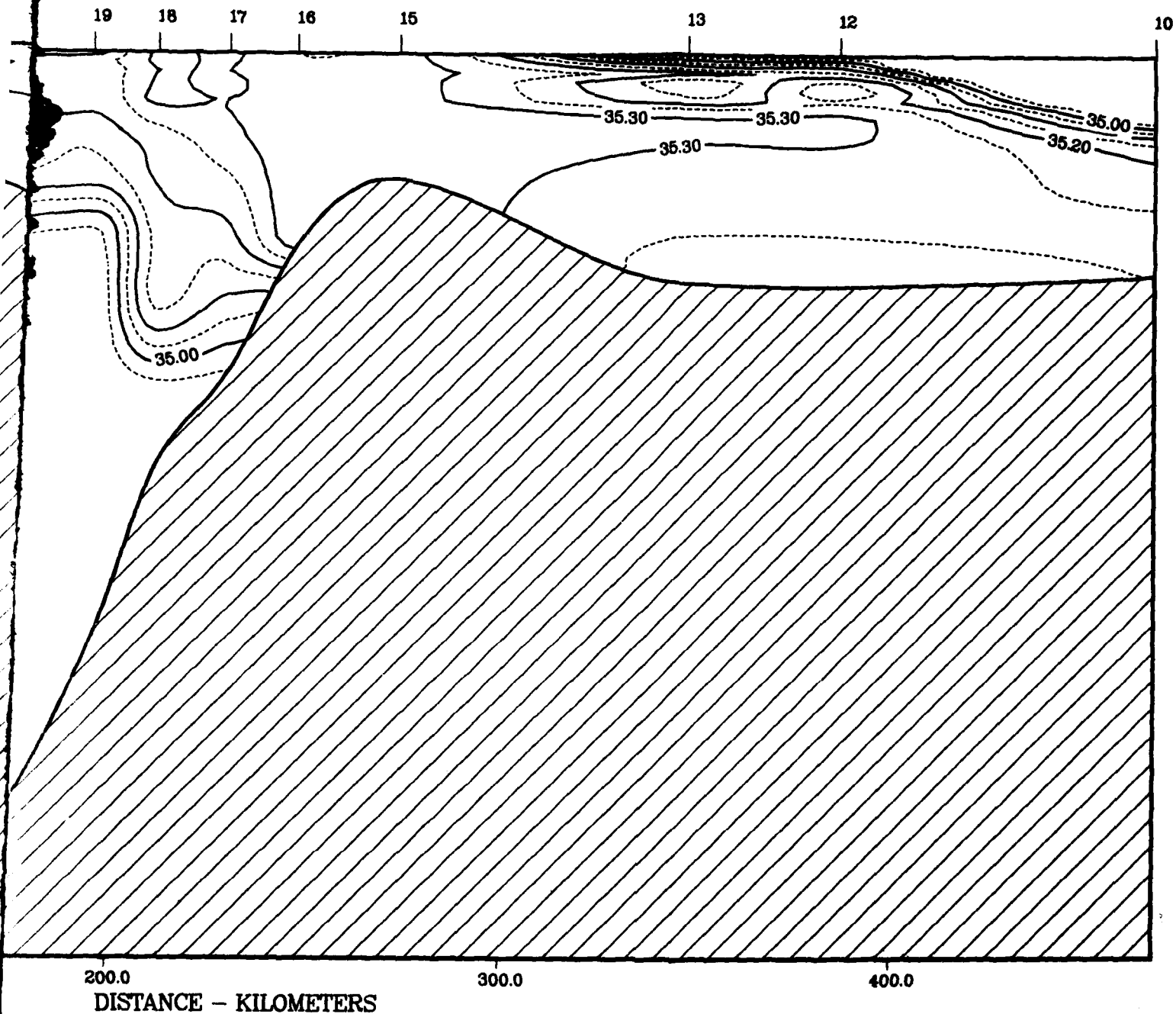


Figure 44 June 1925 salinity section.

SOGNEFJORD SECTION
FILE = ICES4:1925JUN.DAT
SALINITY



2

ICES\$.1927MAY.DAT

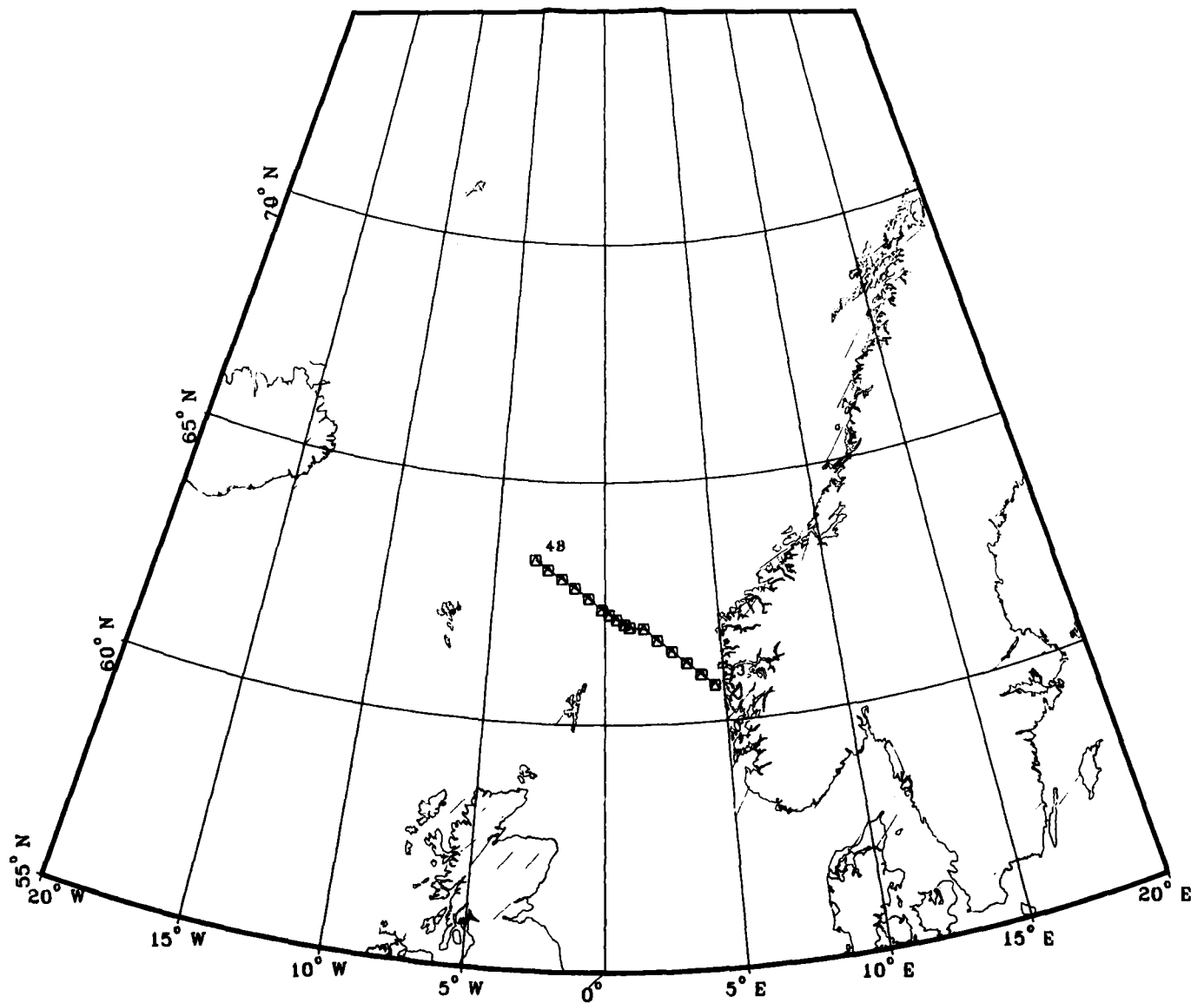


Figure 45. May 1927 station positions.

SOGNEFJORD SECTION
FILE = ICES\$:1927MAY.DAT
T/S PLOT

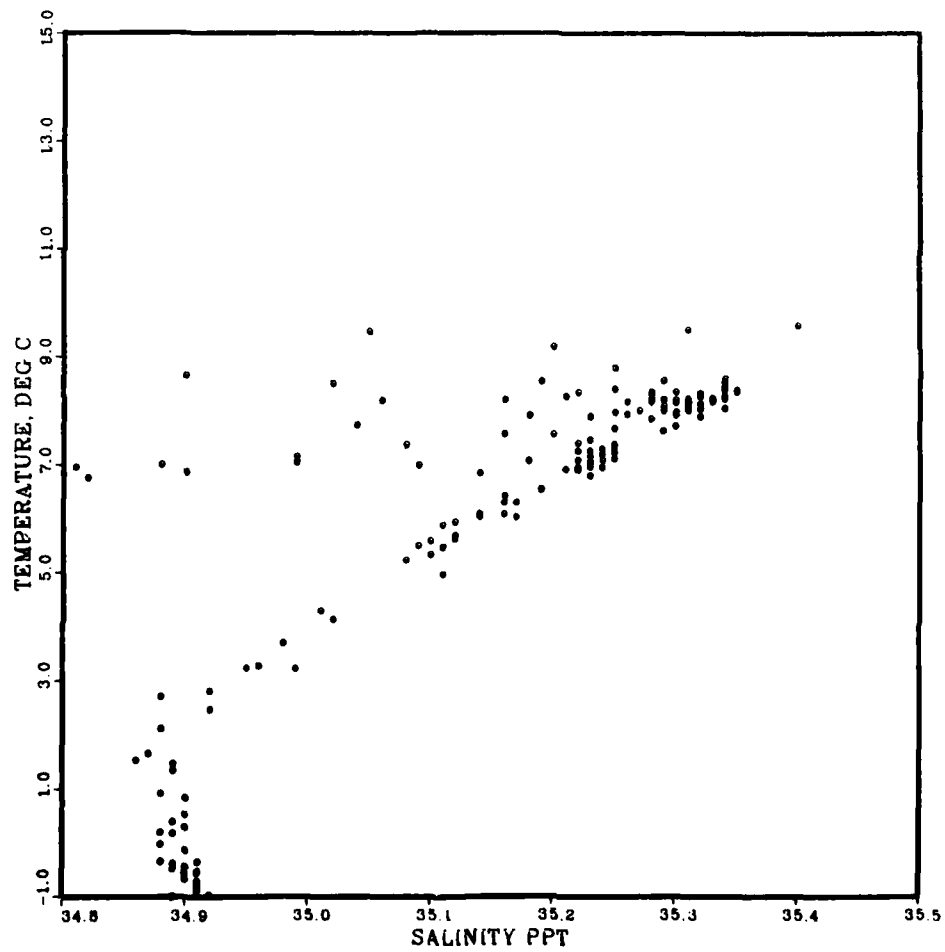


Figure 46. May 1927 temperature/salinity diagram.

SOGNEFJORD SECTION
FILE = ICES\$ 1927MAY DAT 1
TEMPERATURE

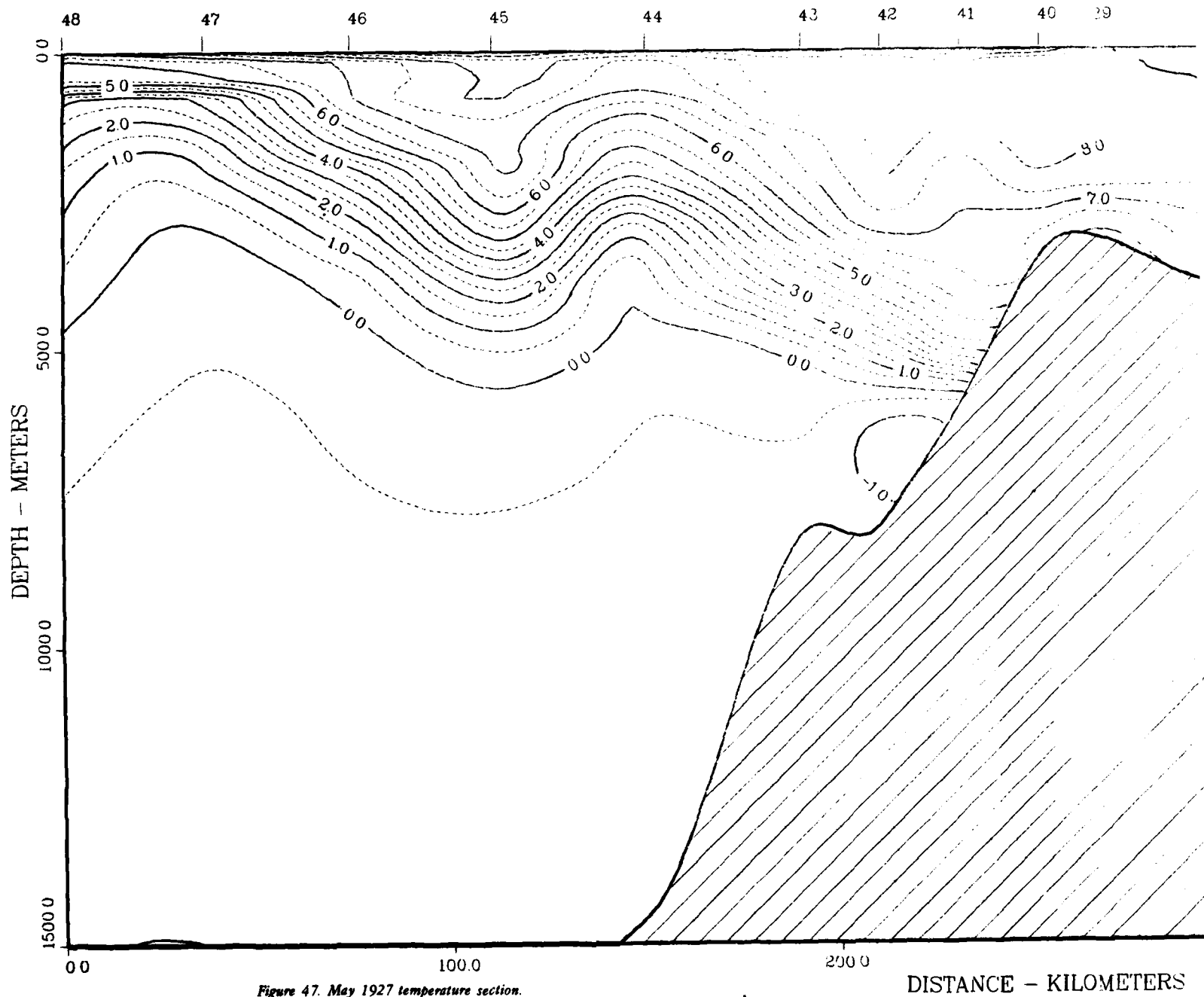
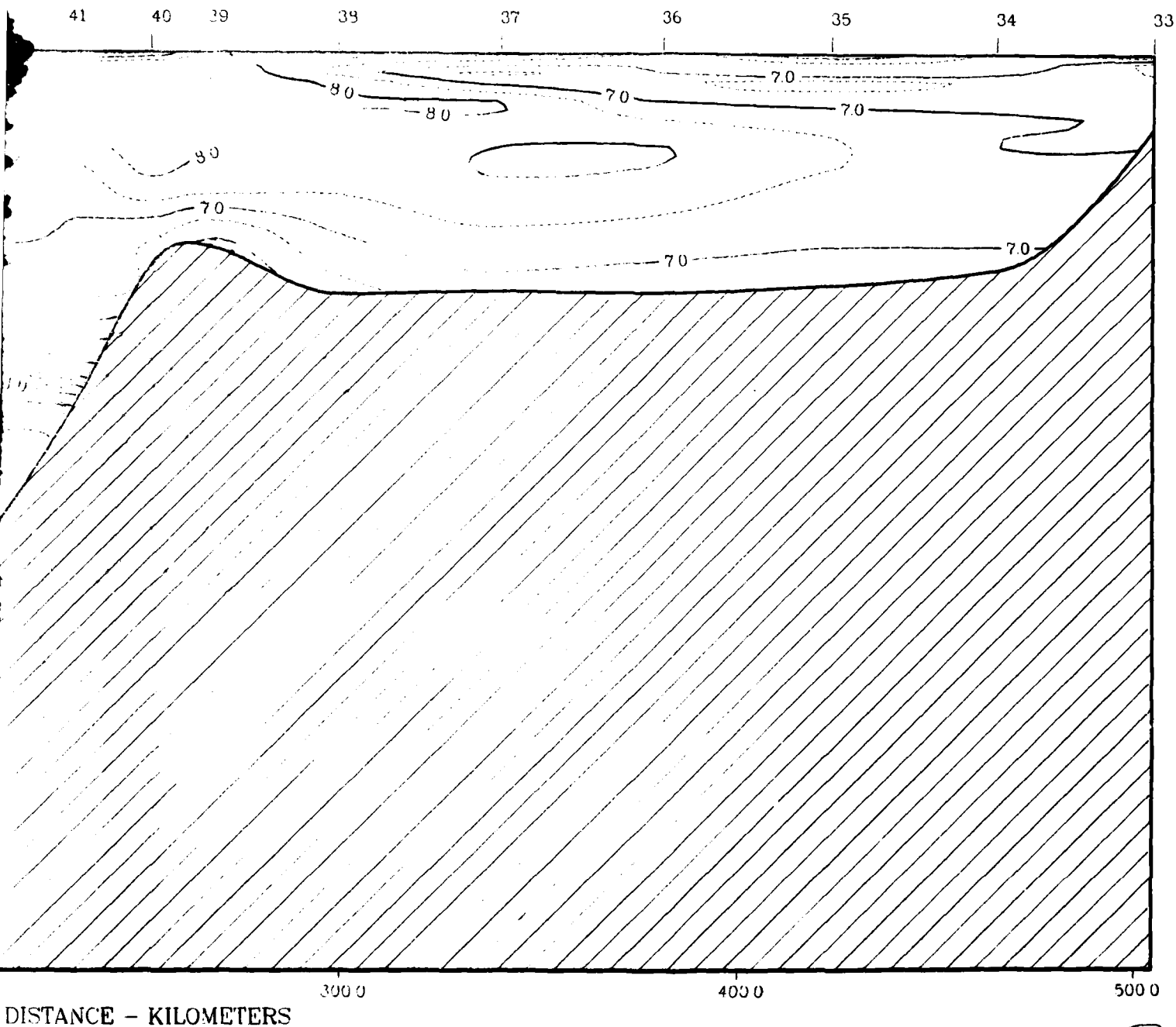


Figure 47. May 1927 temperature section.

SOGNEFJORD SECTION
FILE = ICES 1927 MAY DAT 1
TEMPERATURE



SOGNEFJORD SECTION
FILE = ICES 1927 MAY DATA
SALINITY

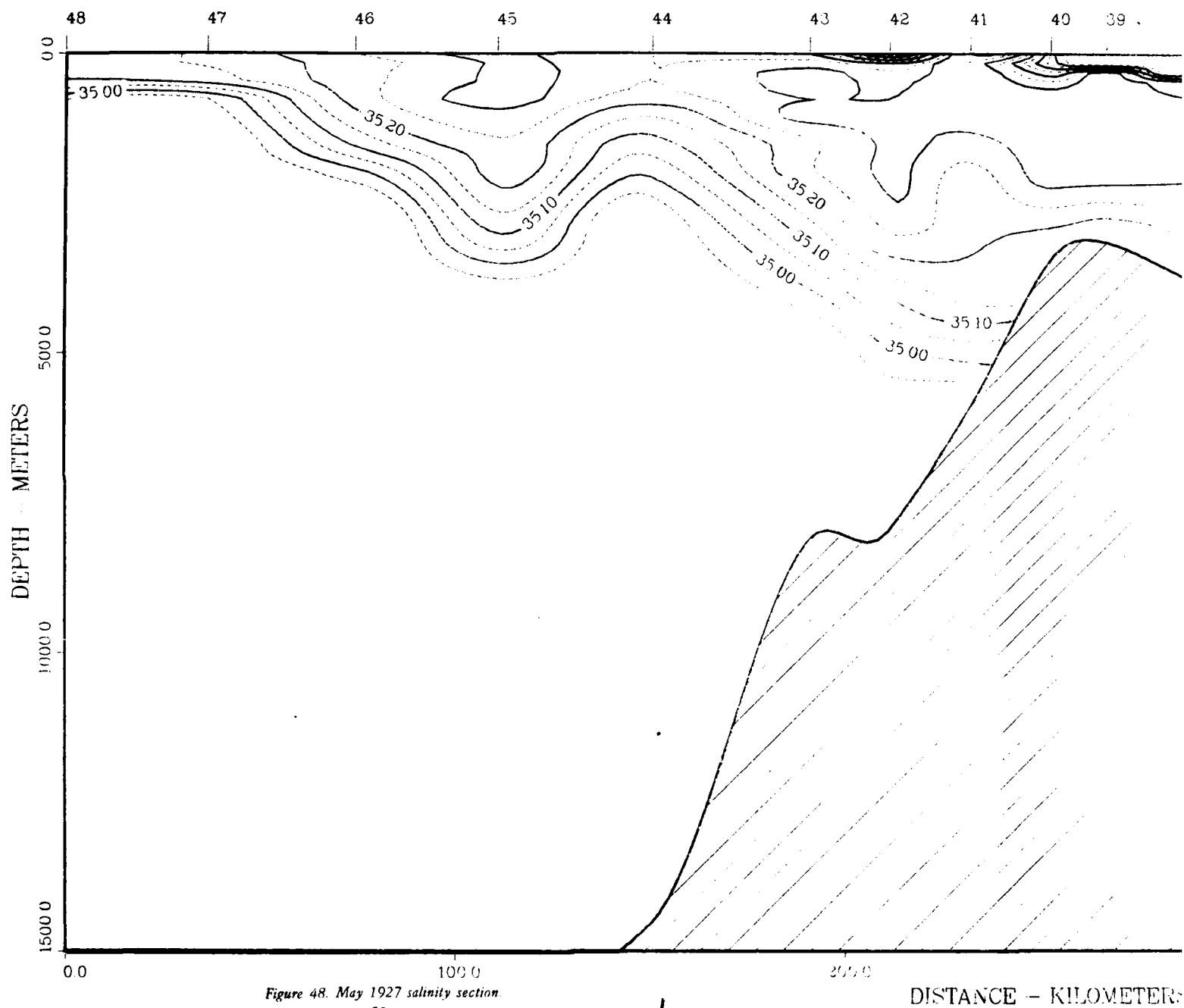
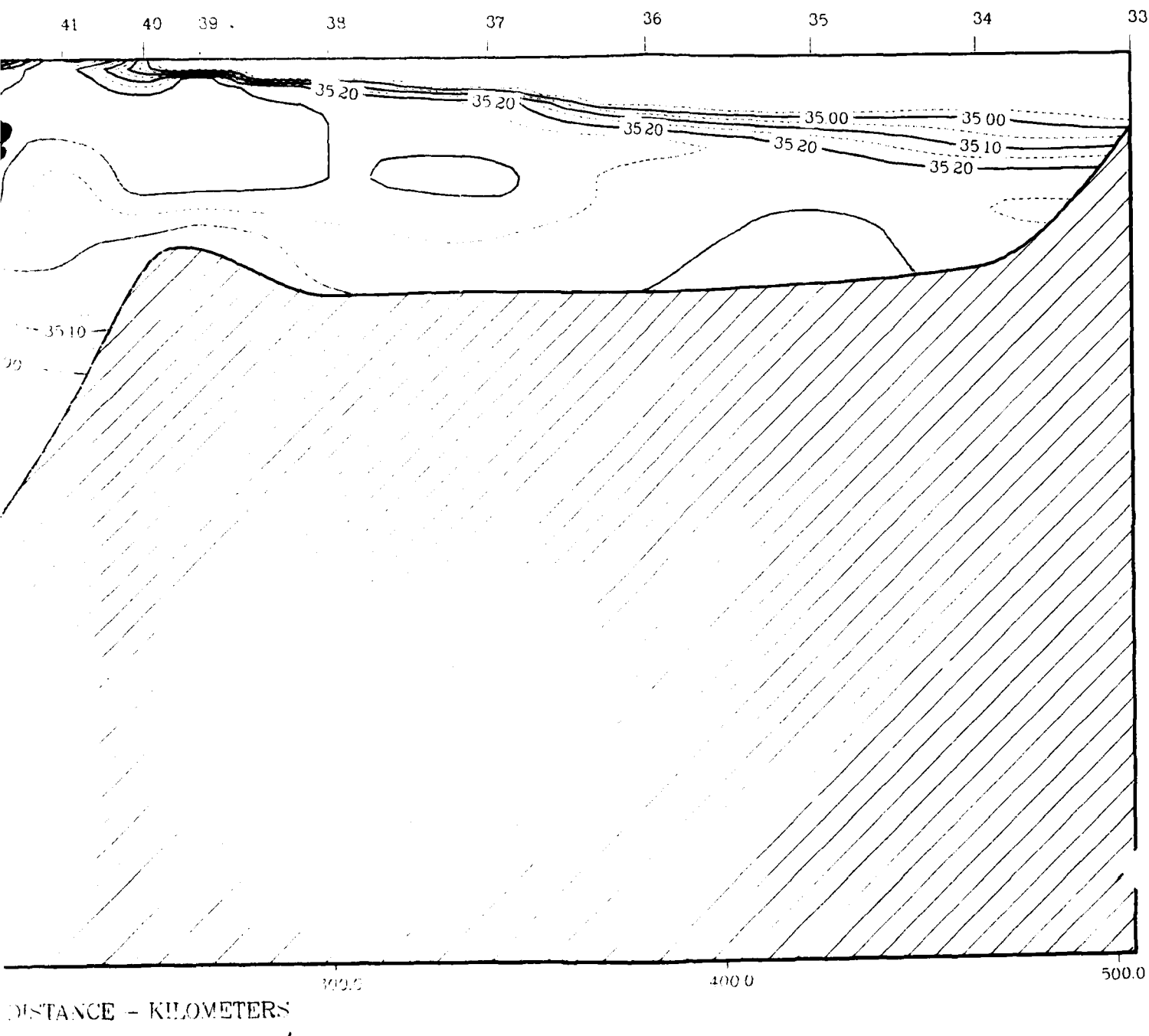


Figure 48. May 1927 salinity section.
50

DISTANCE - KILOMETERS

NOGNEFJORD SECTION
FILE = ICES 1927 MAY DAT. 1
SALINITY



ICES\$:1928AUG.DAT

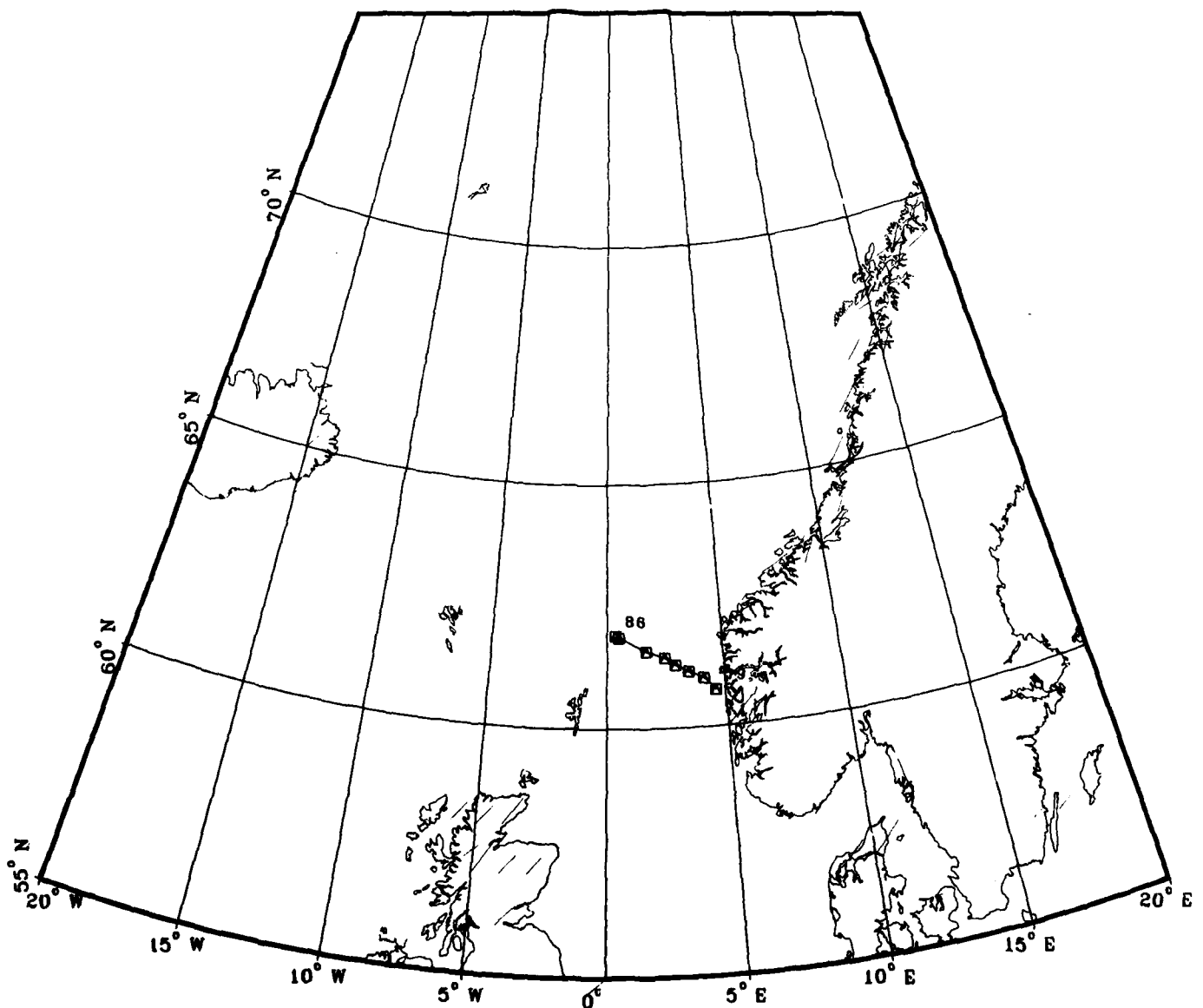


Figure 49. August 1928 station positions.

SOGNEFJORD SECTION
FILE = ICES\$.1928AUG.DAT
T/S PLOT

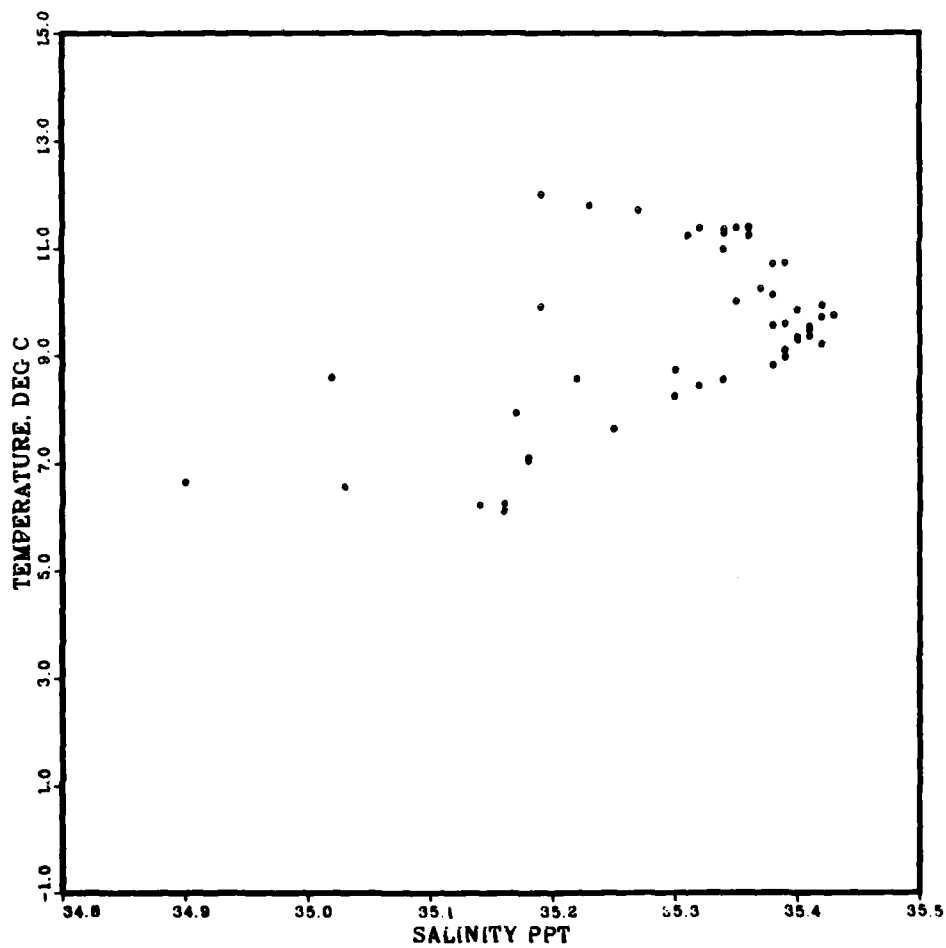


Figure 50. August 1928 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES# 1928AUG.DAT1
 TEMPERATURE

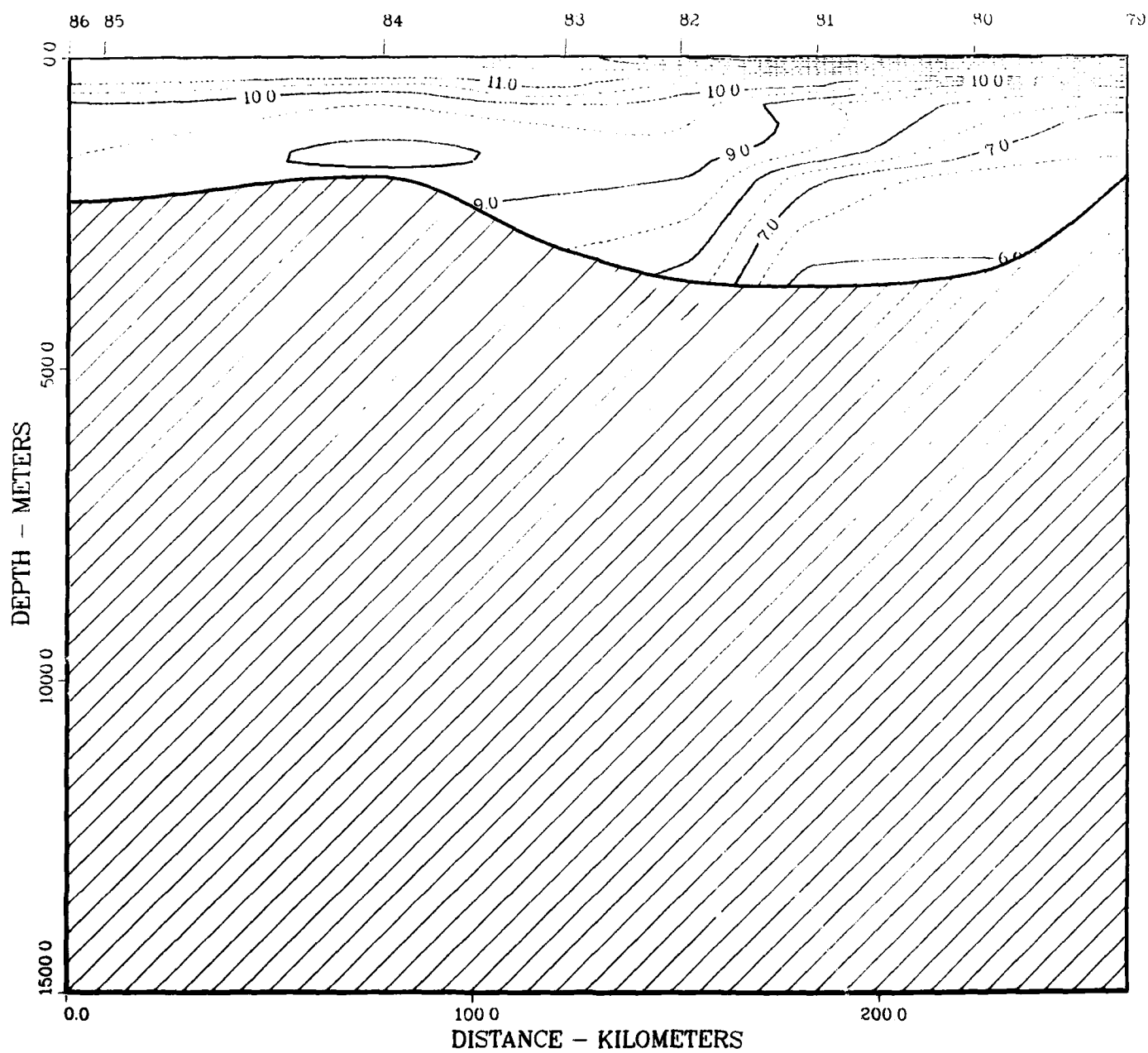


Figure 31. August 1928 temperature section.

SOGNEFJORD SECTION
 FILE = ICES#1929AUG DAT 1
 SALINITY



Figure 52. August 1928 salinity section.

ICES\$:1929MAY.DAT

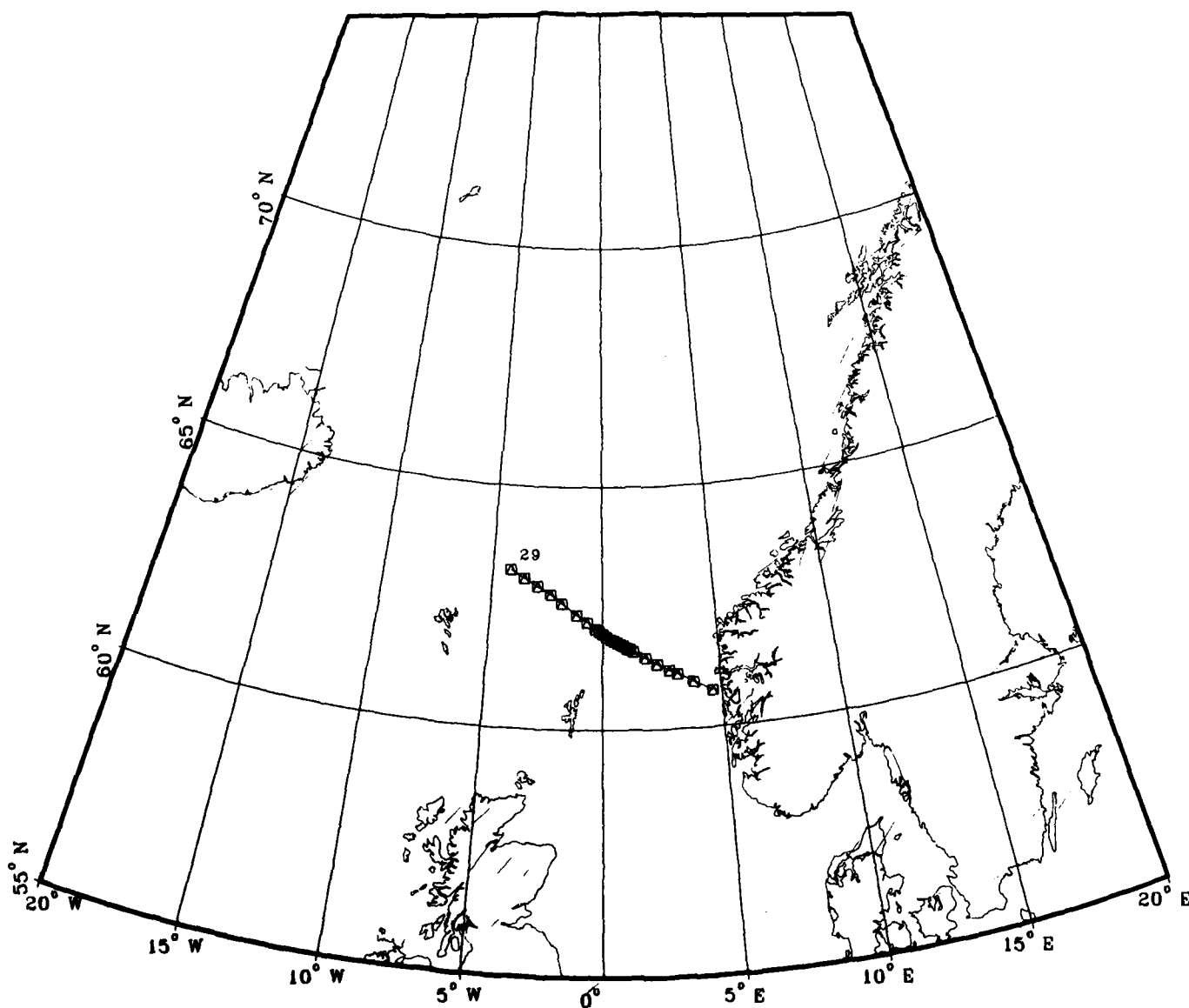


Figure 53. May 1929 station positions.

SOGNEFJORD SECTION
FILE = ICE8\$1929MAY.DAT
T/S PLOT

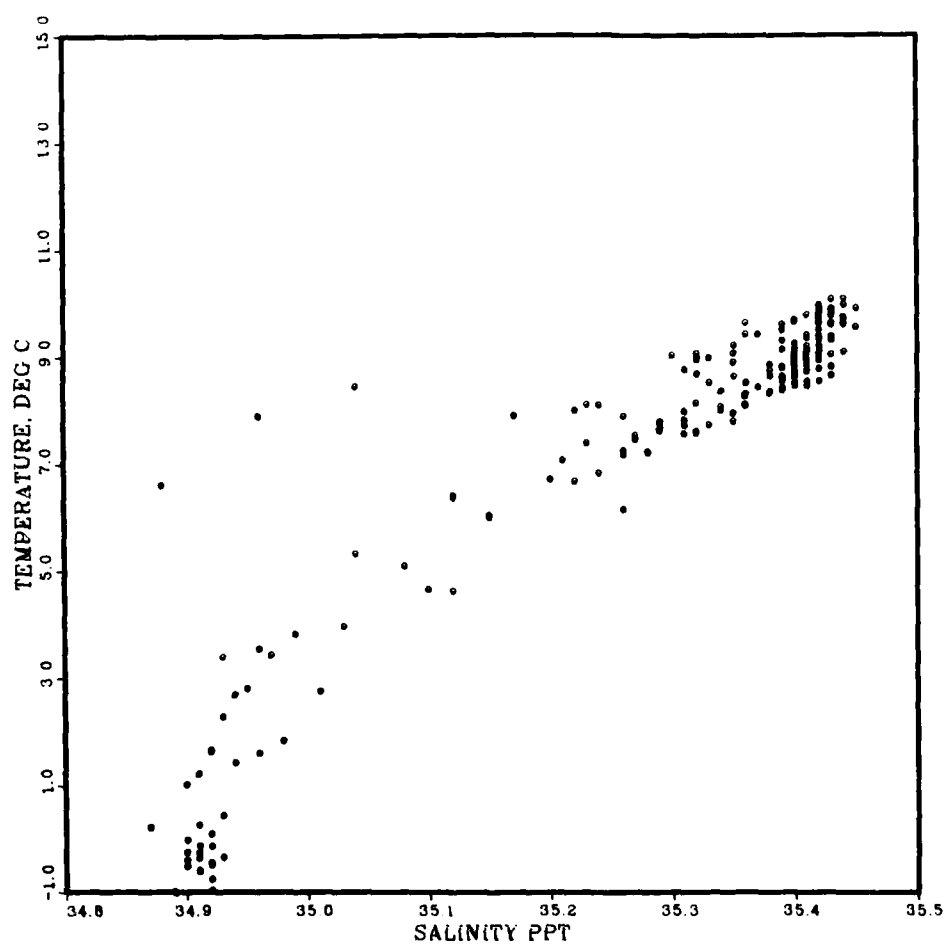
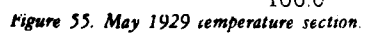
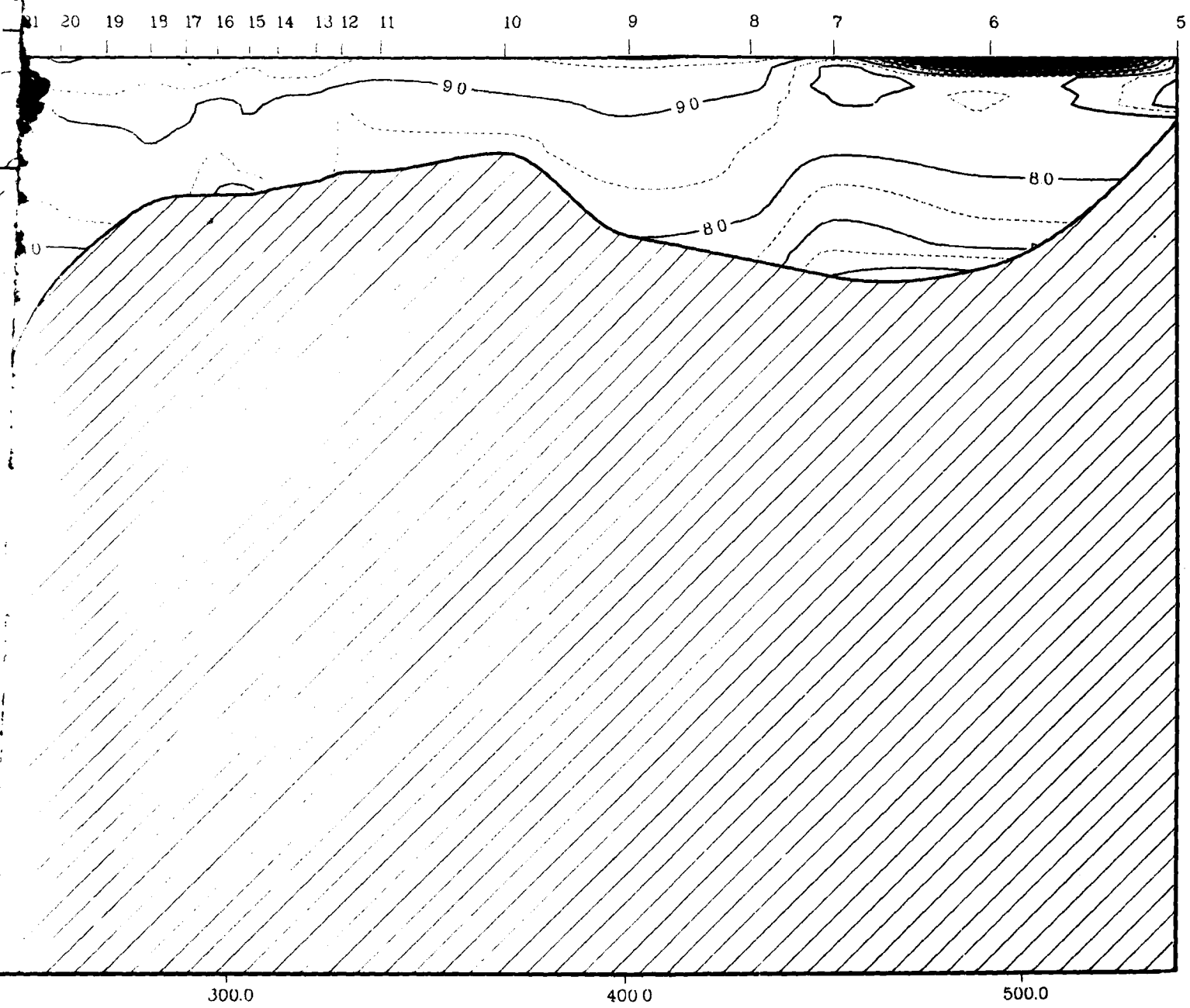


Figure 54. May 1929 temperature/salinity diagram.

FILE = ICES\$:1929MA
TEMPERATURE



NEFJORD SECTION
= ICES 1929 MAY DAT 1
TEMPERATURE



2

SOGNEFJORD SEC
FILE = ICES 1929 MAY 1
SALINITY

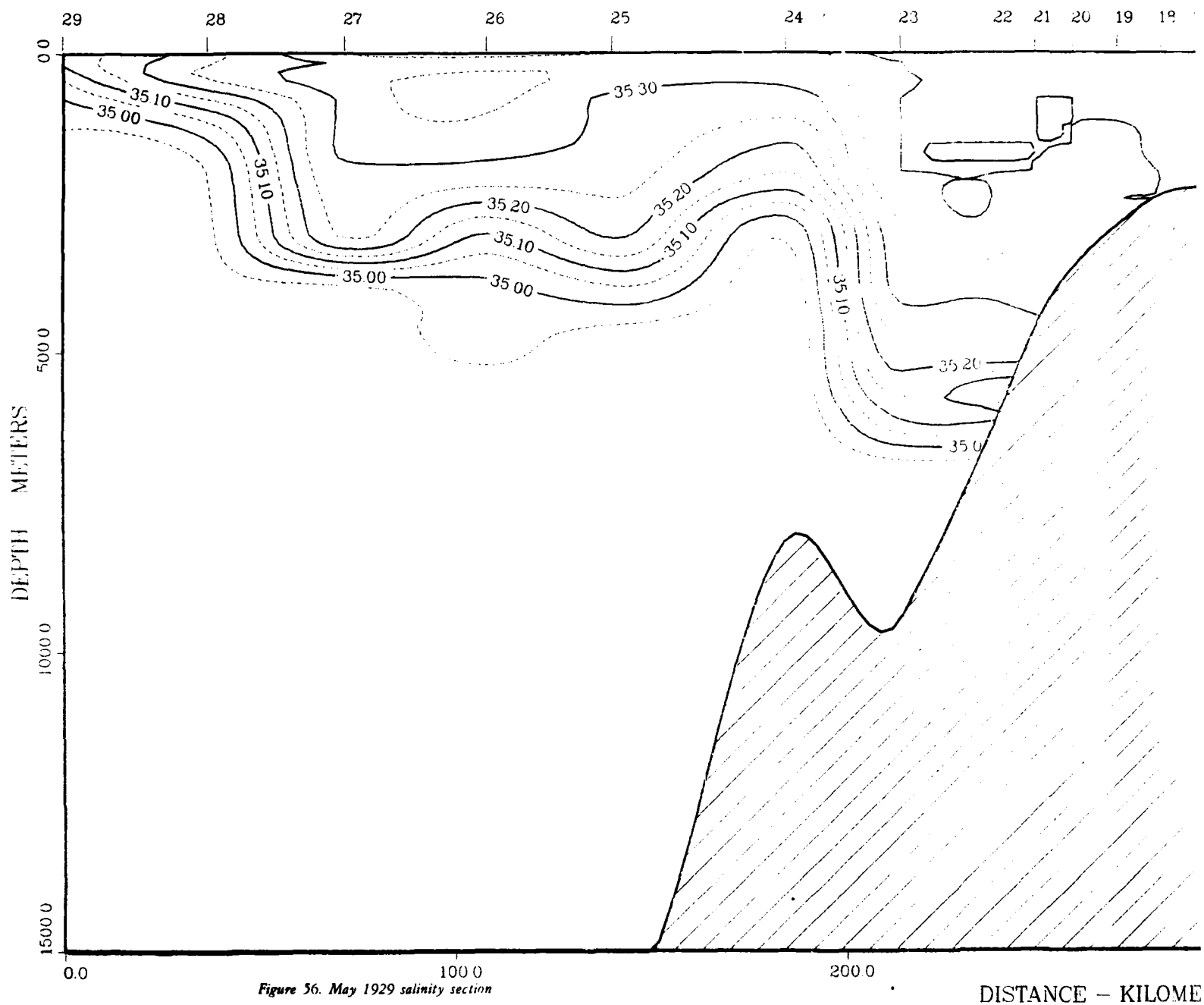
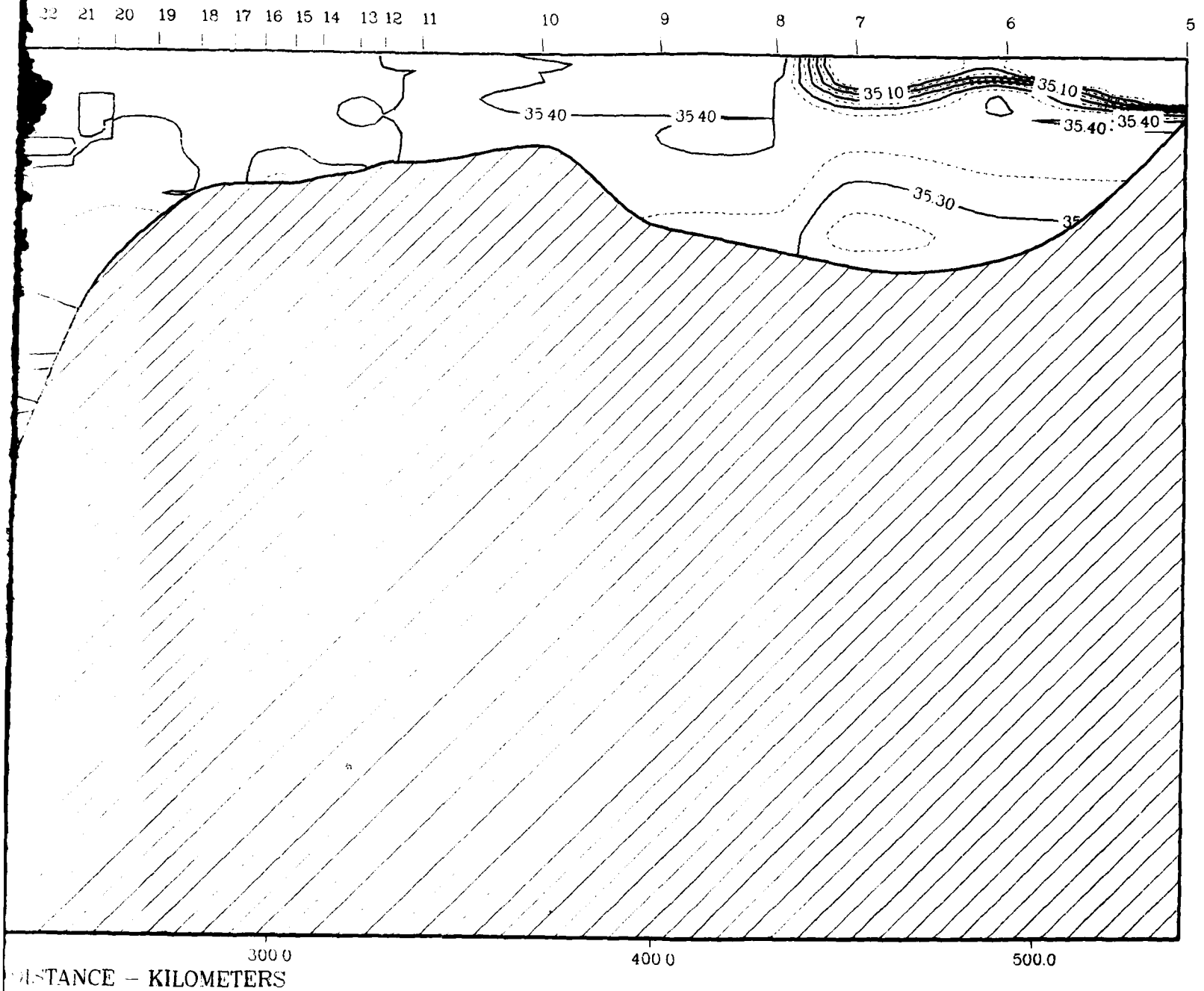


Figure 56. May 1929 salinity section

SOGNEFJORD SECTION

FILE = ICES\$1929MAY DAT1
SALINITY



2

ICES\$:1932AUG.DAT

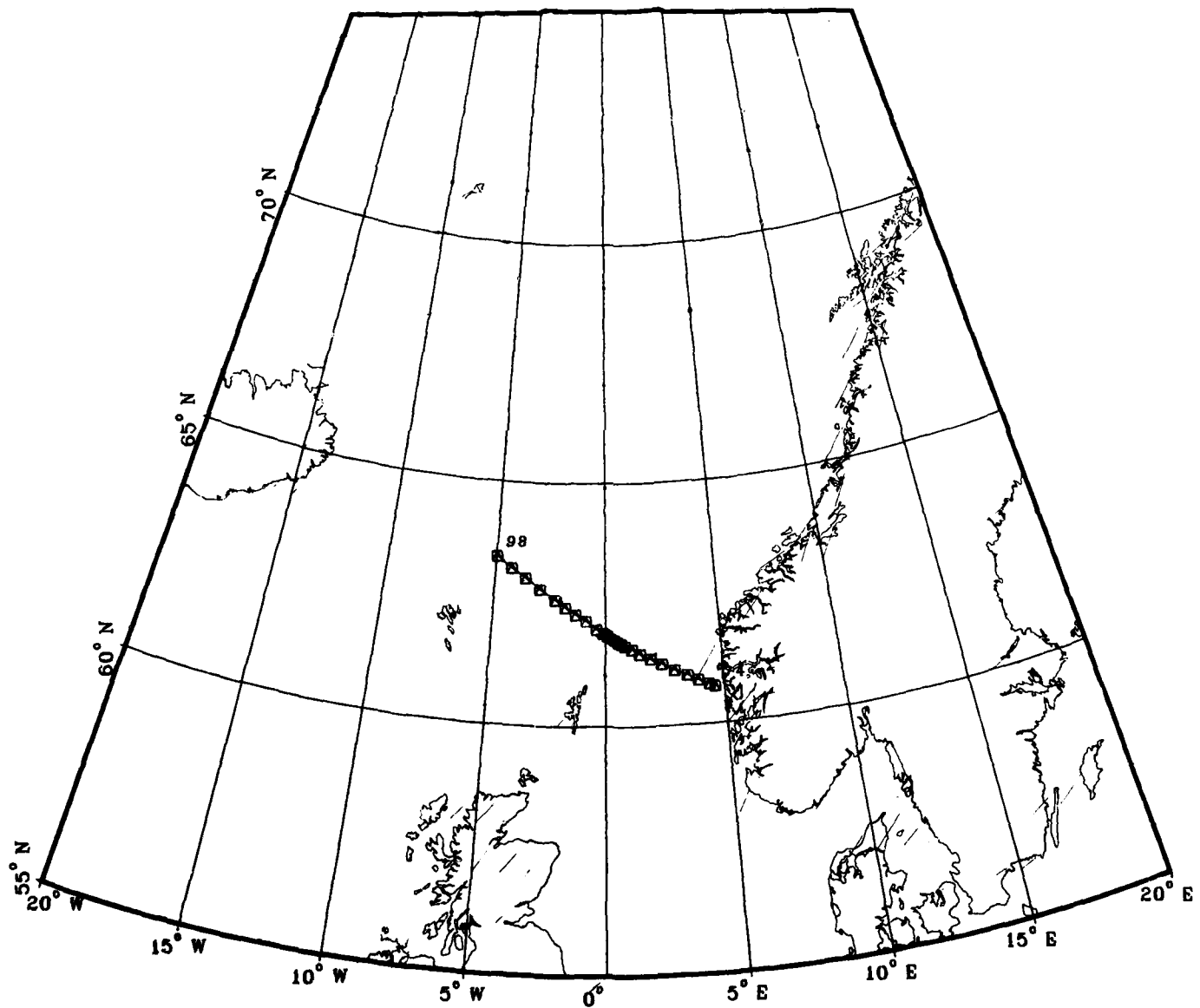


Figure 57. August 1932 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1932AUG.DAT
T/S PLOT

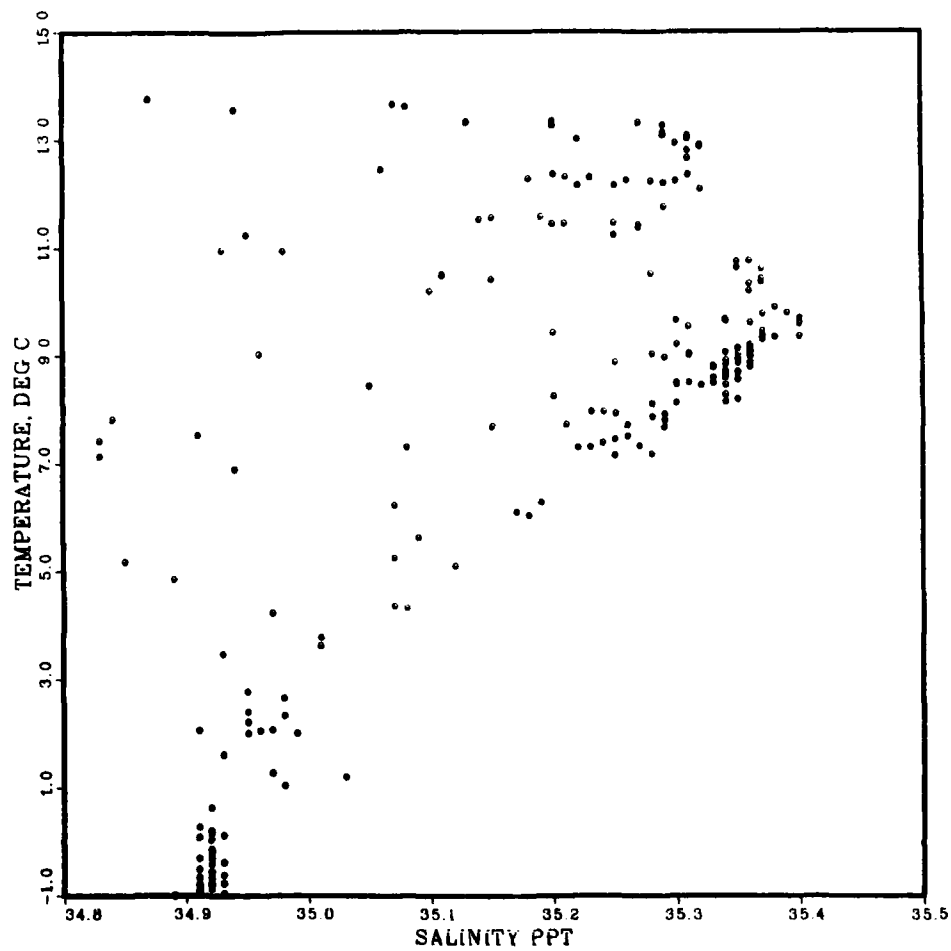


Figure 58. August 1932 temperature/salinity diagram.

SOGNEFJORD
FILE = ICES 19
TEMPERA

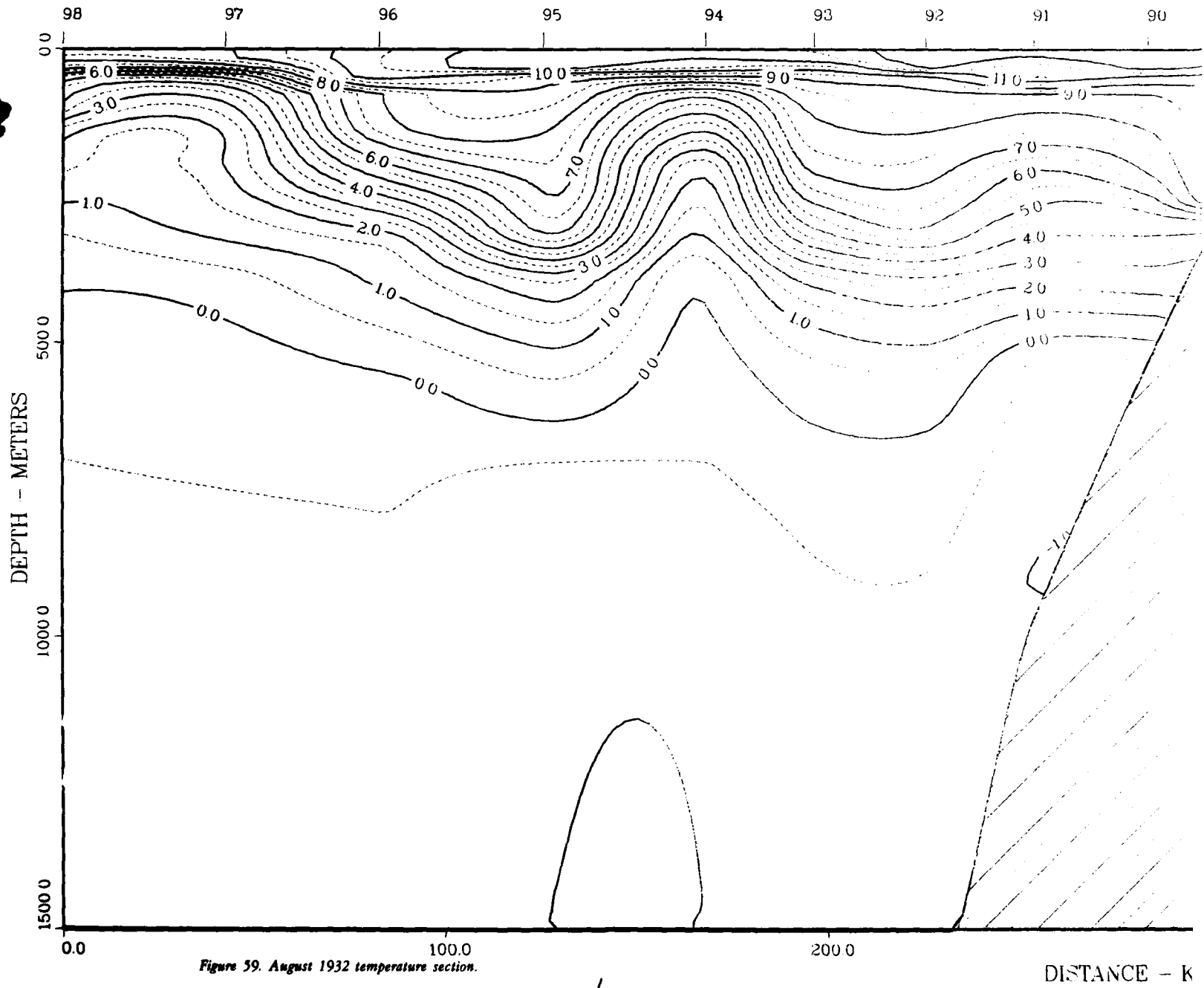
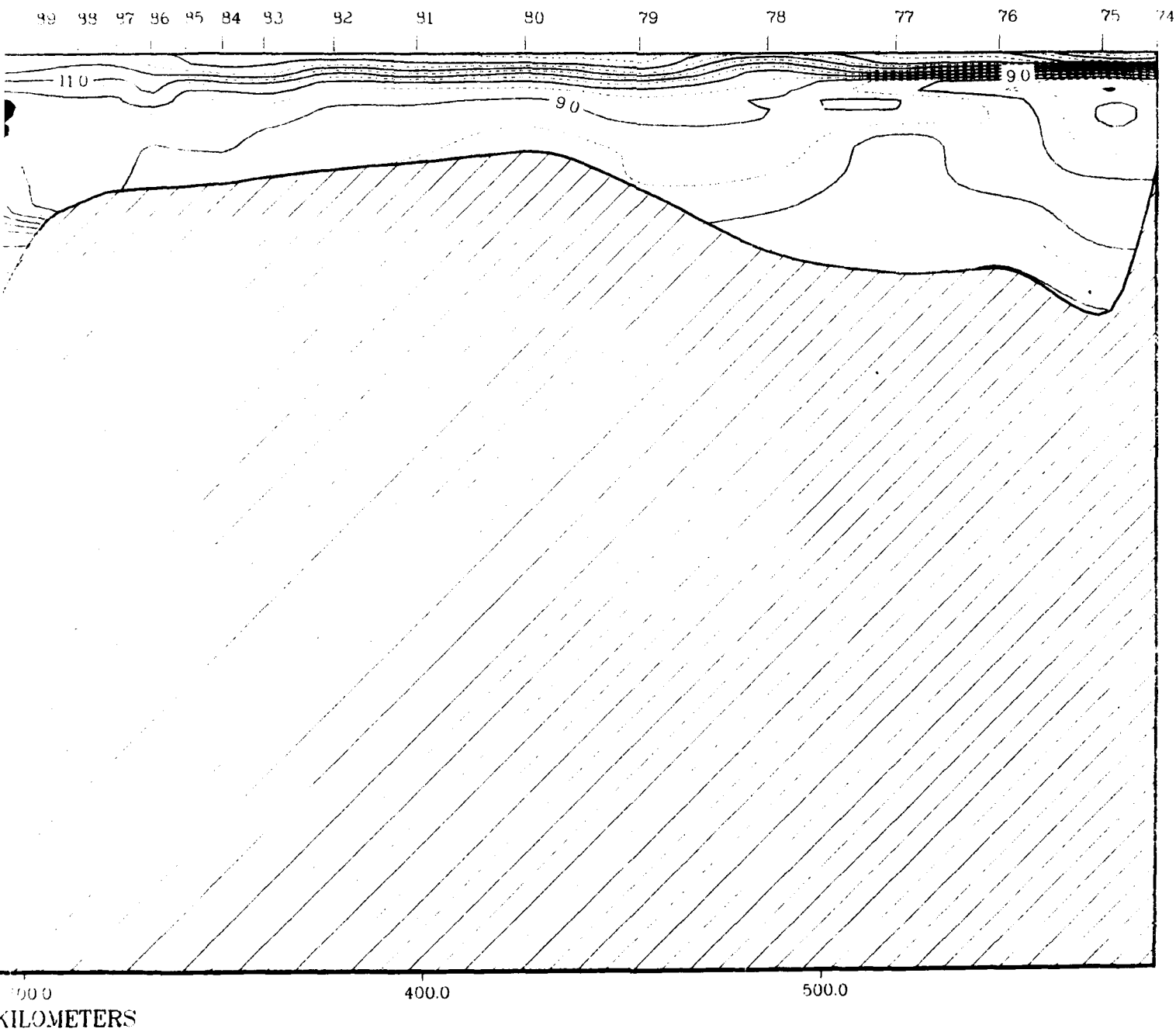


Figure 59. August 1932 temperature section.

D SECTION
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NATURE



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SOGNEFJORD SEC
FILE - ICES 1932 AUG
SALINITY

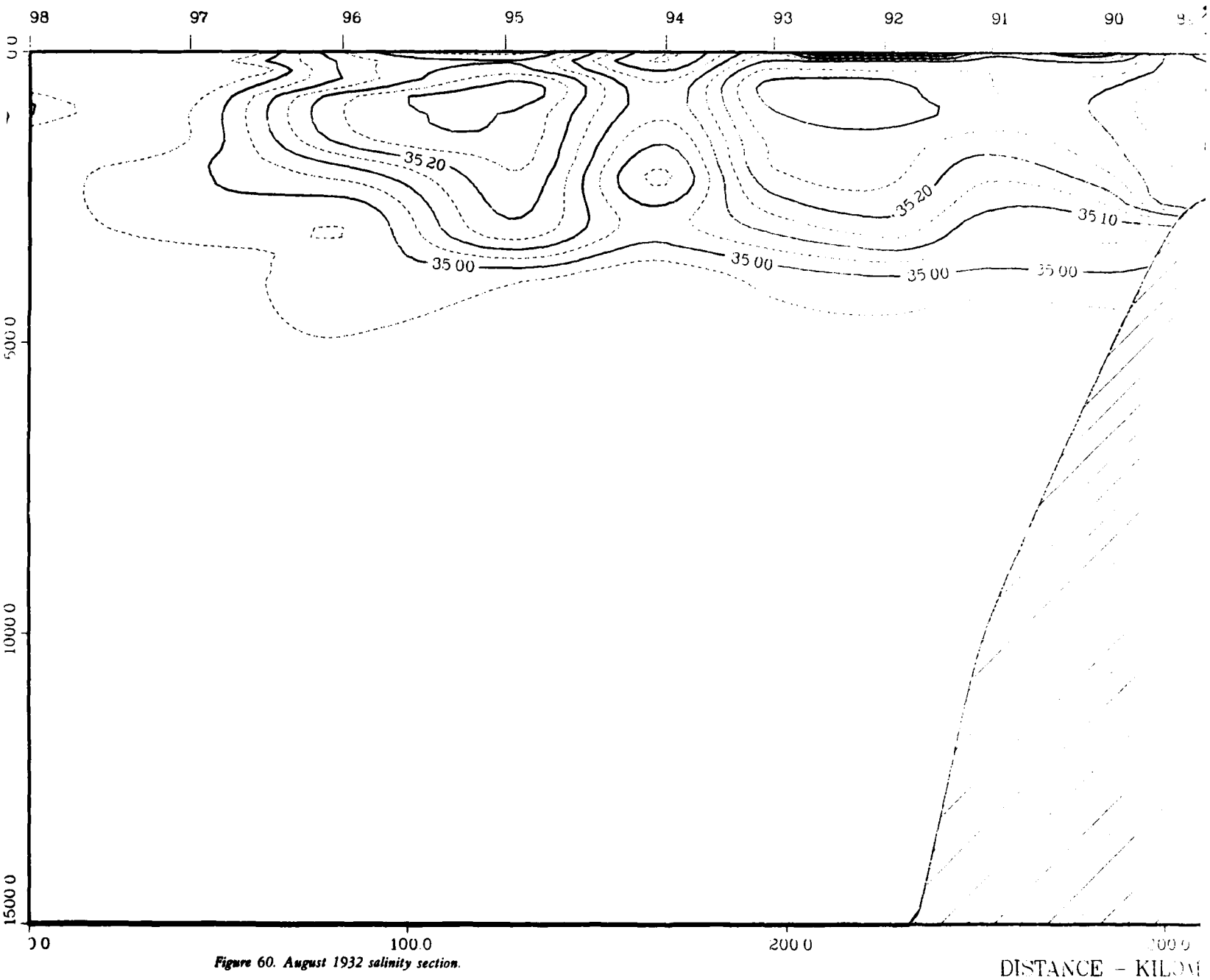
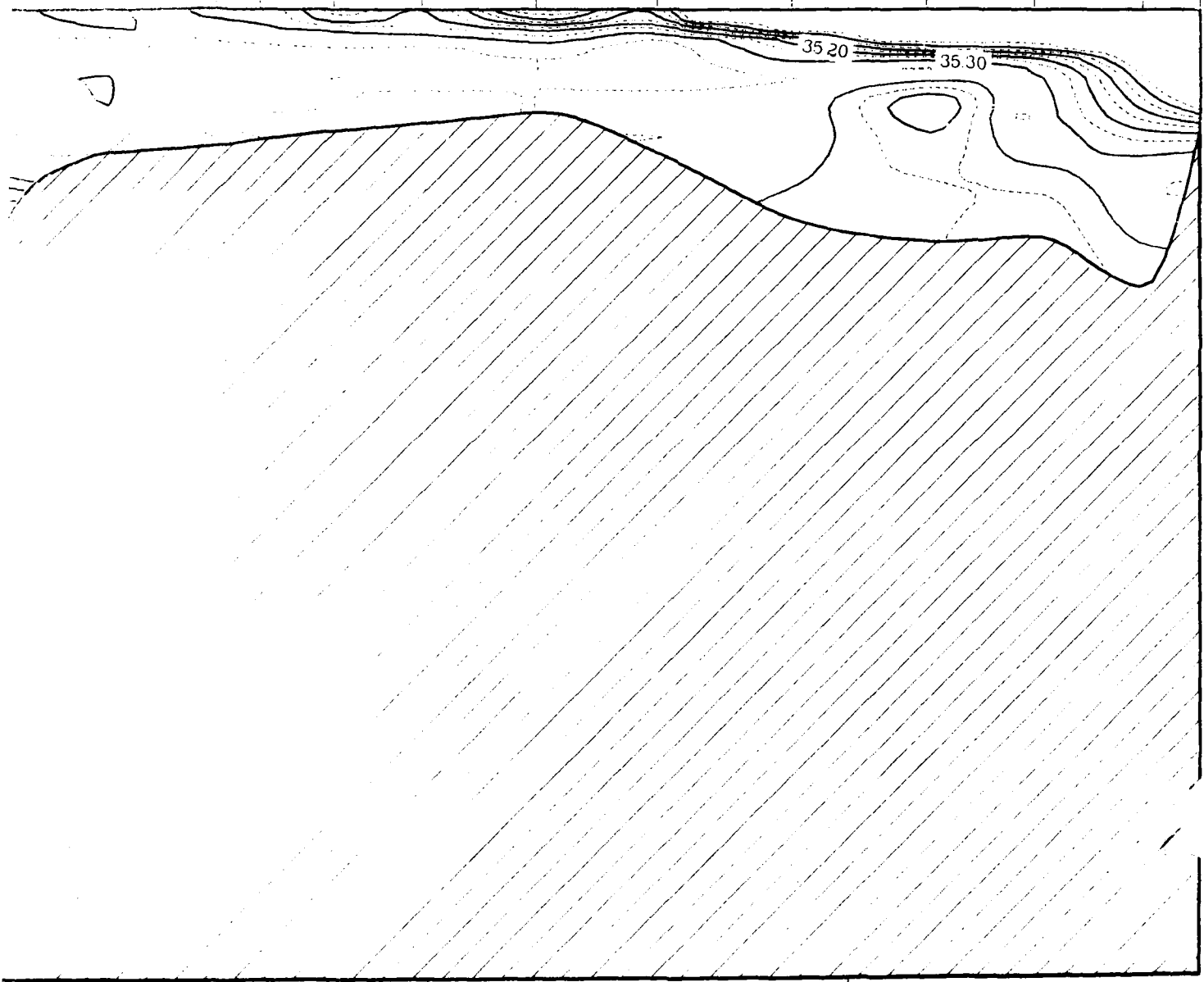


Figure 60. August 1932 salinity section.

SECTION
AUG DAT 1

98 99 97 96 95 94 93 92 91 80 79 78 77 76 75 74



0.0
METERS

400.0

500.0

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ICES\$:1933AUG.DAT

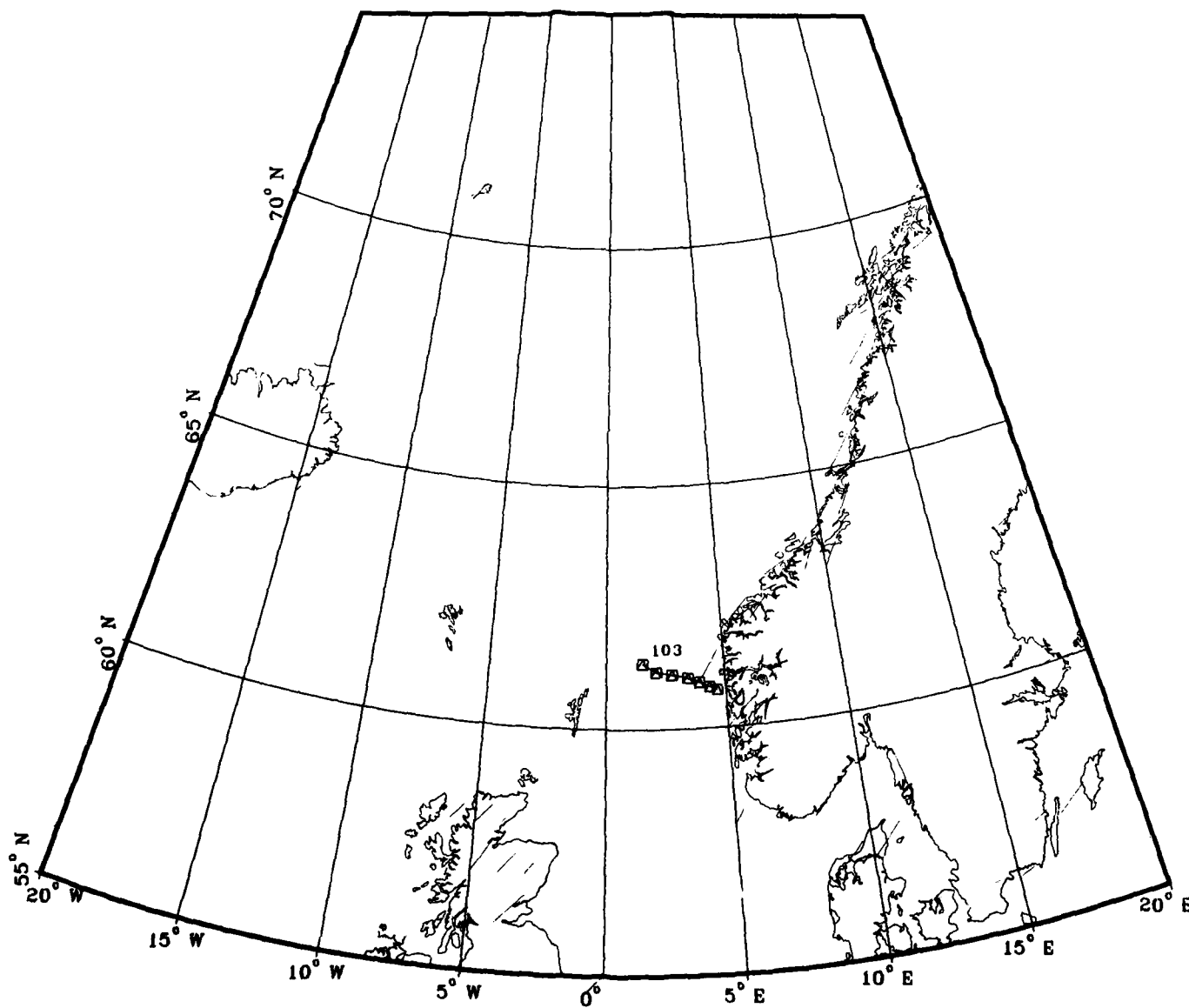


Figure 61. August 1933 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1933AUG.DAT
T/S PLOT

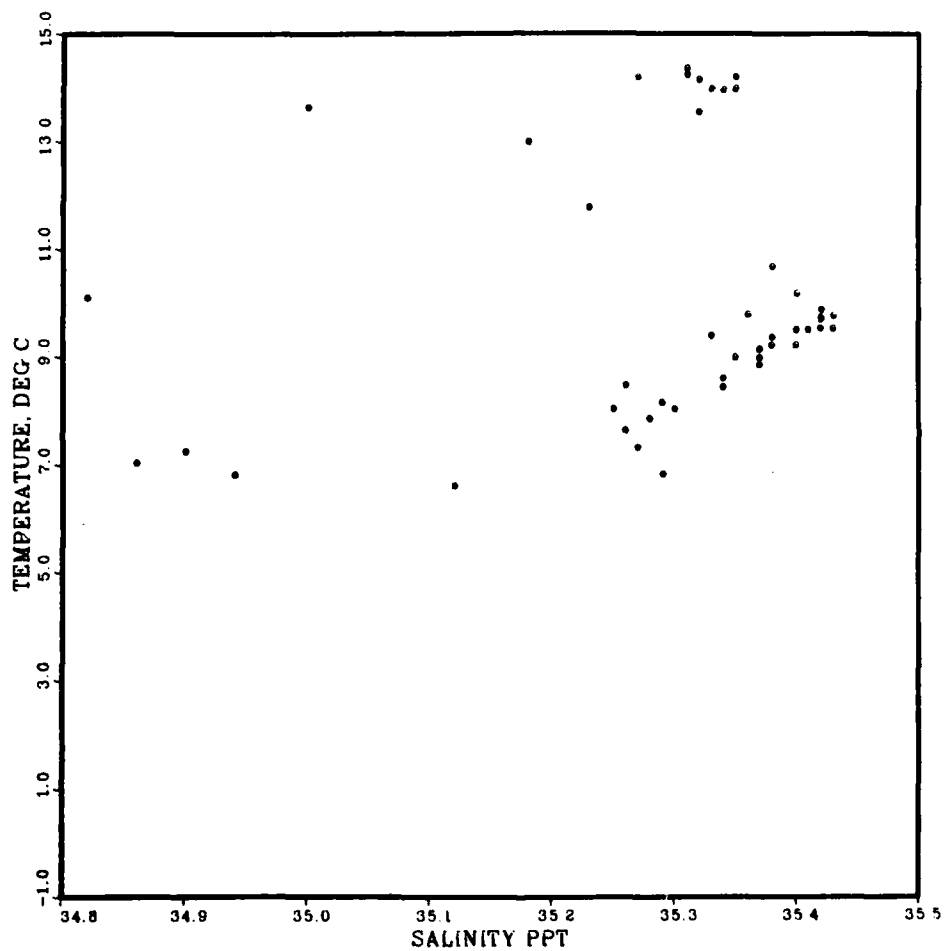


Figure 62. August 1933 temperature/salinity diagram.

SOGNEFJORD SECTION
FILE = ICES\$ 1933AUG.DAT,1
TEMPERATURE

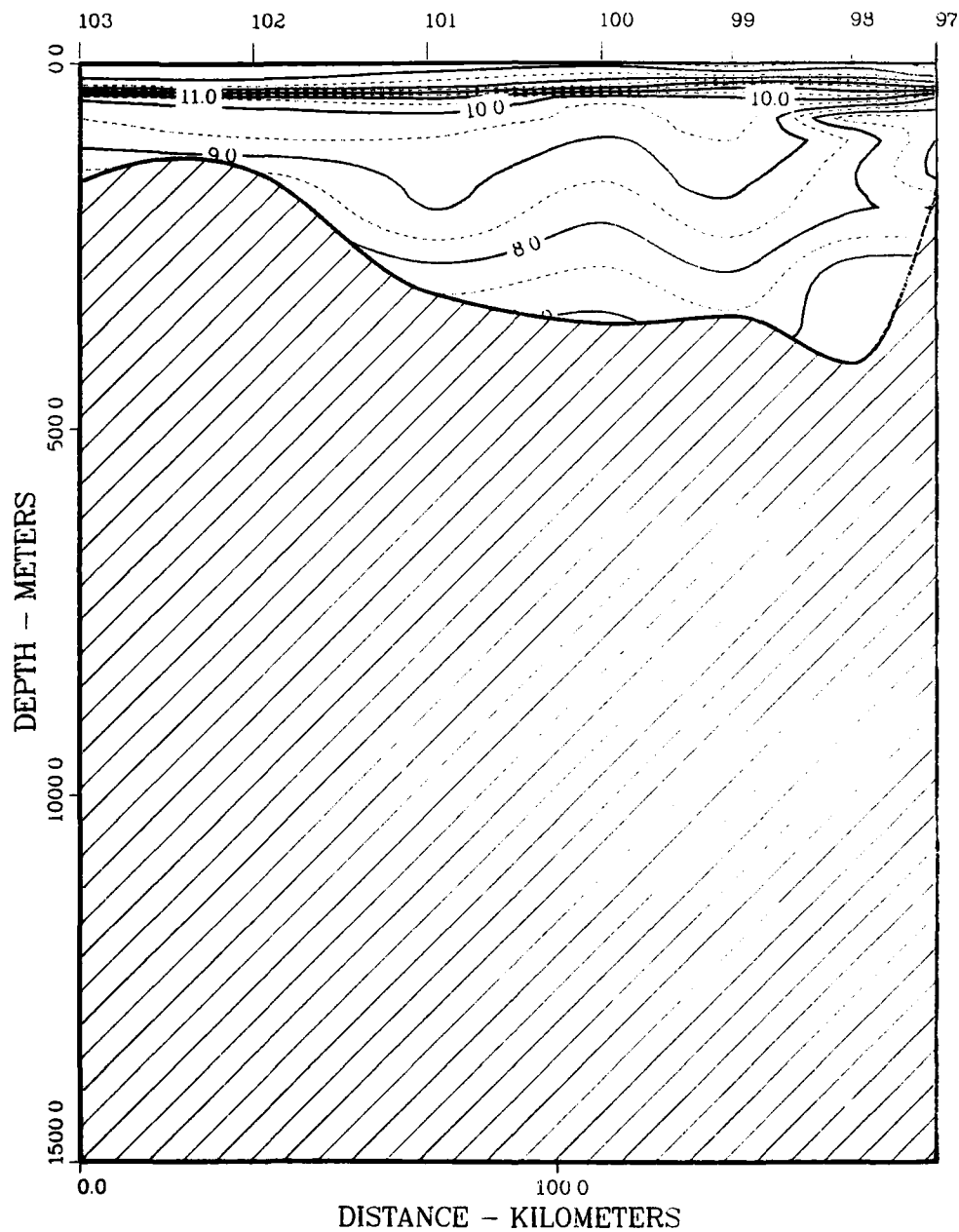


Figure 63. August 1933 temperature section.

SOGNEFJORD SECTION
FILE = ICES11933AUG.DAT.1
SALINITY

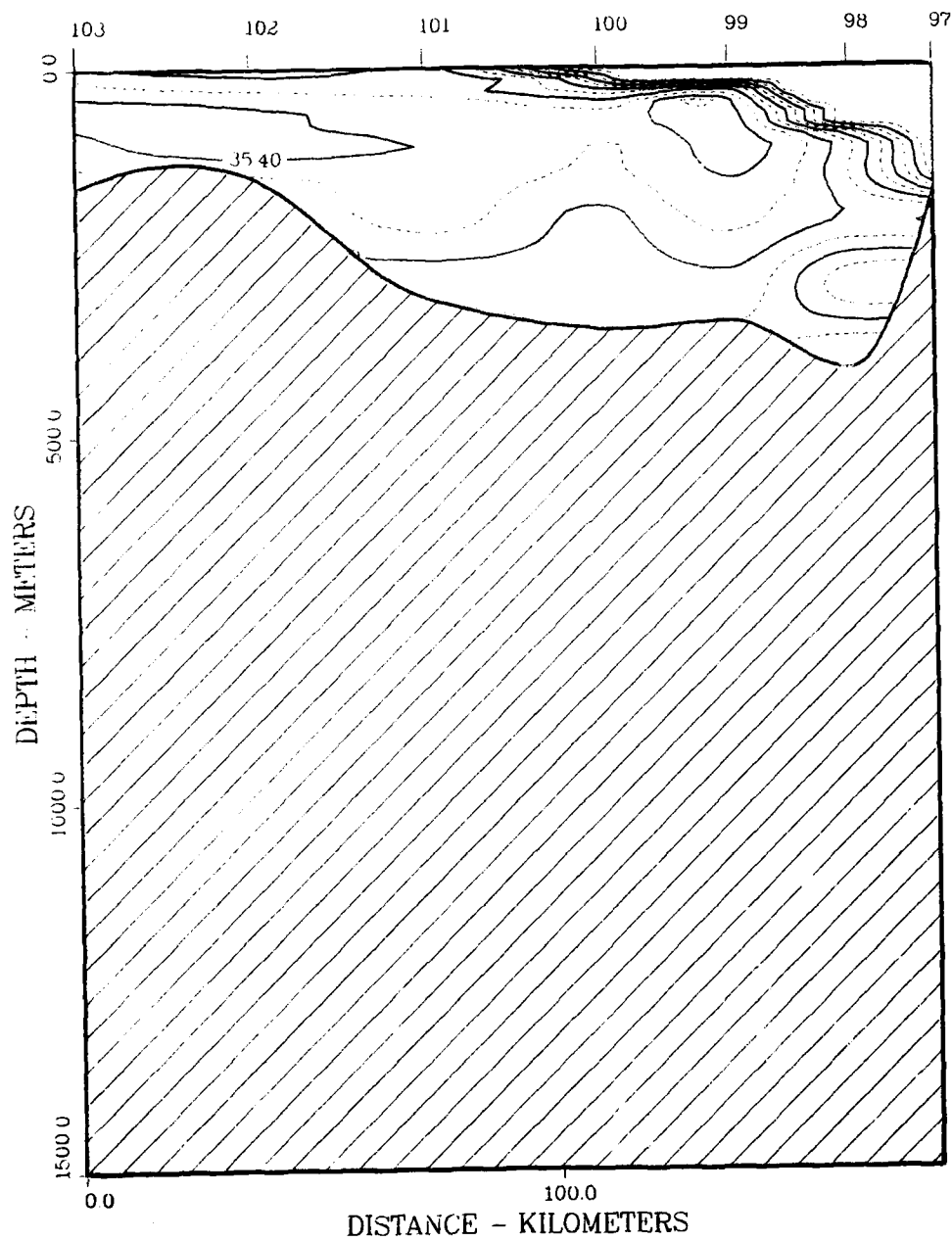


Figure 64. August 1933 salinity section.

AD-A169 098

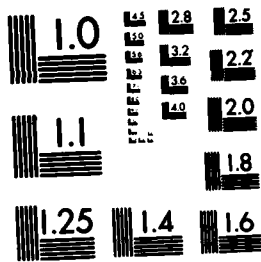
ATLAS OF SOGNETJORD SECTIONS 1900-1970(U) NAVAL OCEAN
RESEARCH AND DEVELOPMENT ACTIVITY NSTL STATION MS
R D SAUNDERS ET AL. APR 85 NORDA-42

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NATIONAL BUREAU OF STANDARDS-1963-A

ICES\$:1934AUG.DAT

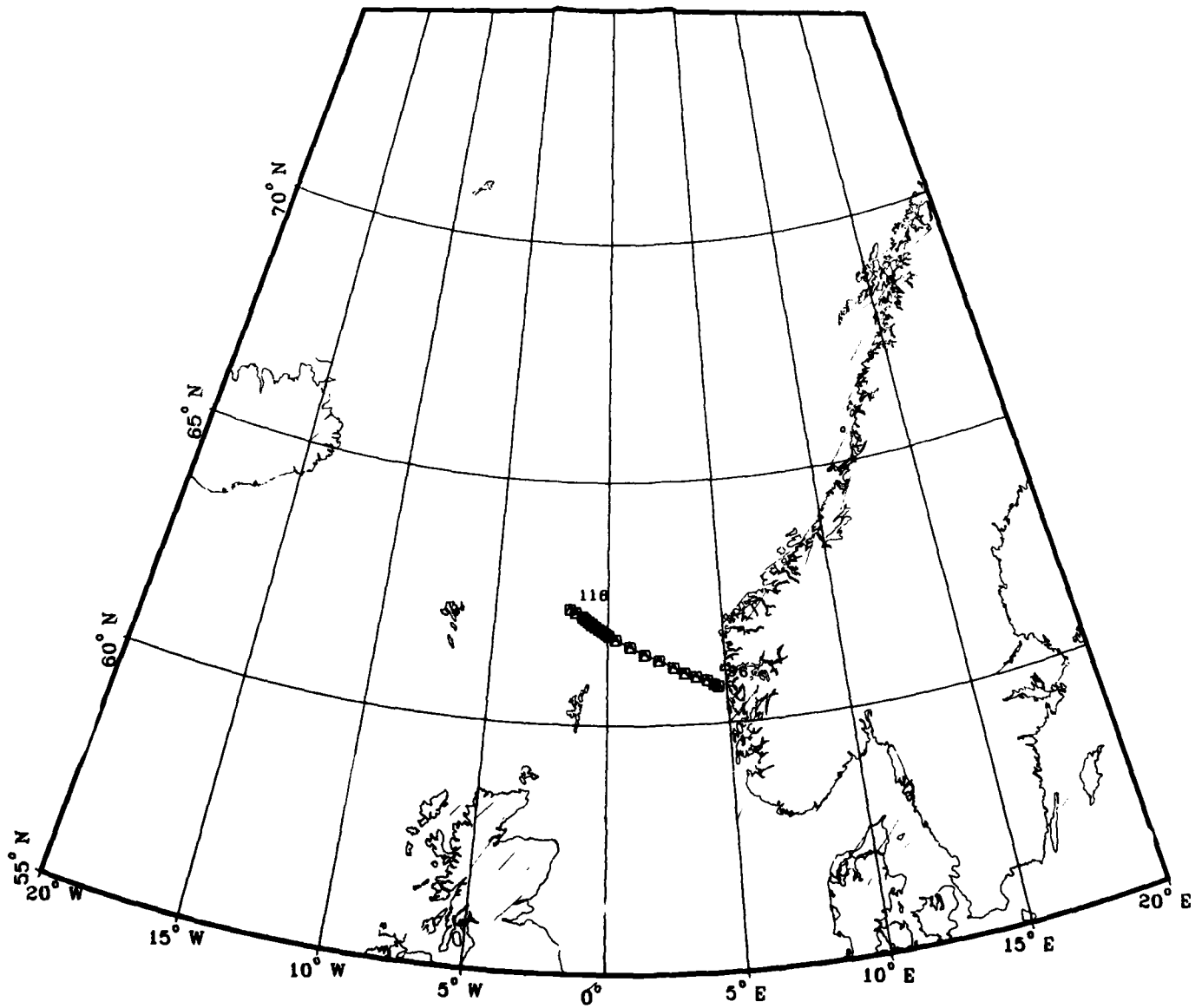


Figure 65. August 1934 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1934AUG.DAT
T/S PLOT

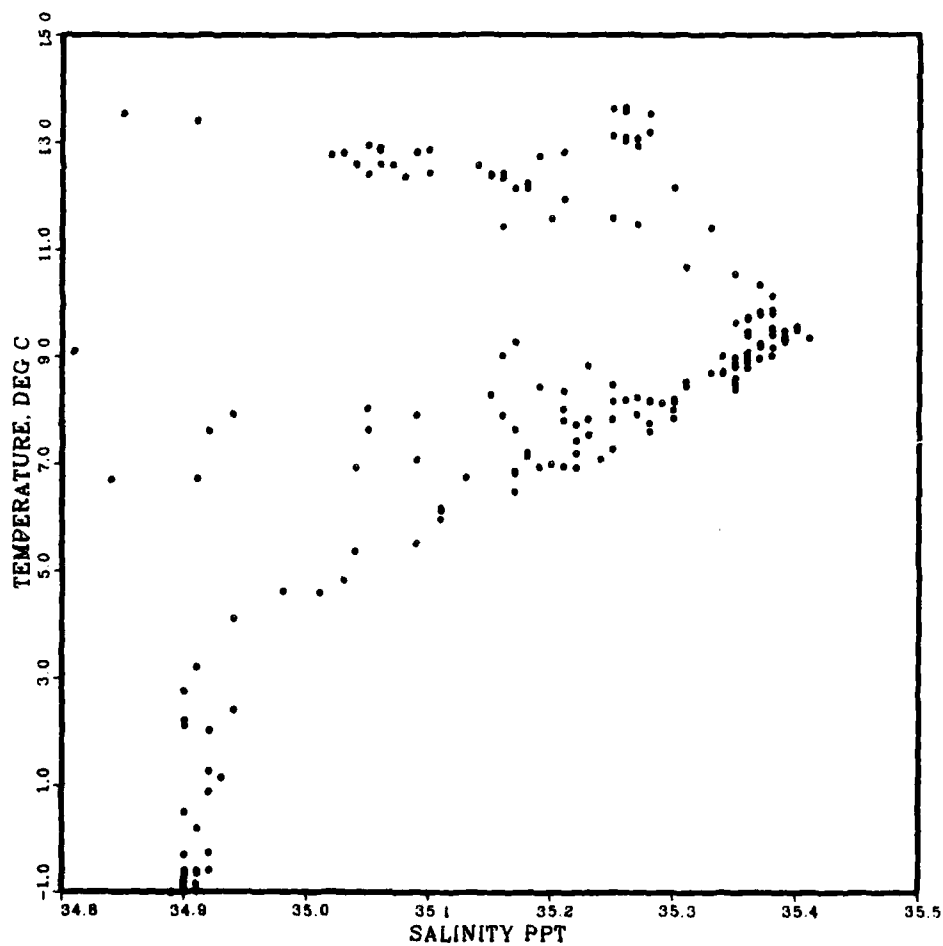


Figure 66. August 1934 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$1934AUG.DAT;1
 TEMPERATURE

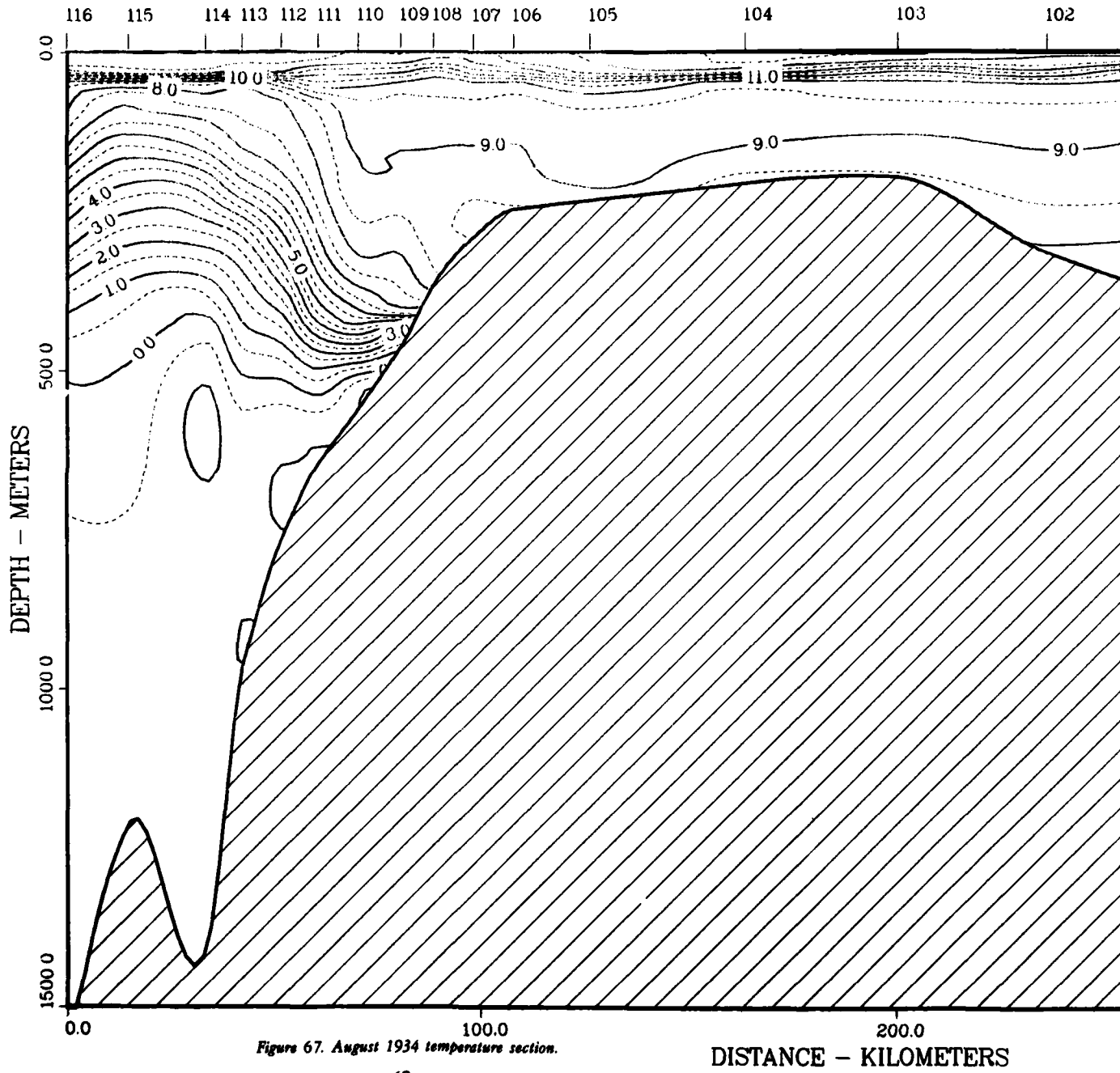
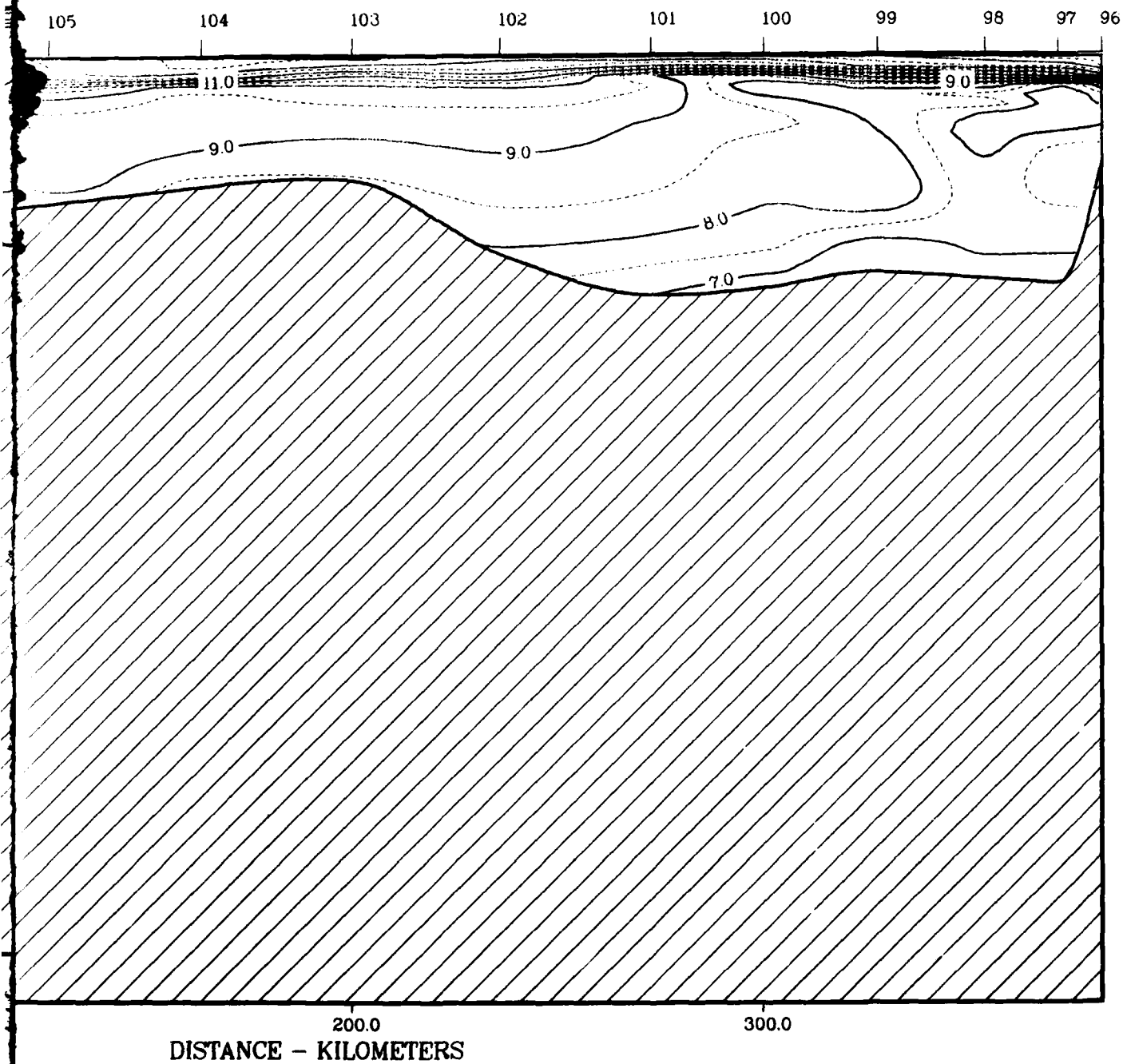


Figure 67. August 1934 temperature section.

SOGNEFJORD SECTION
FILE = ICES#1934AUG.DAT:1
TEMPERATURE



SOGNEFJORD SECTION
 FILE = ICES\$1934AUG DAT1
 SALINITY

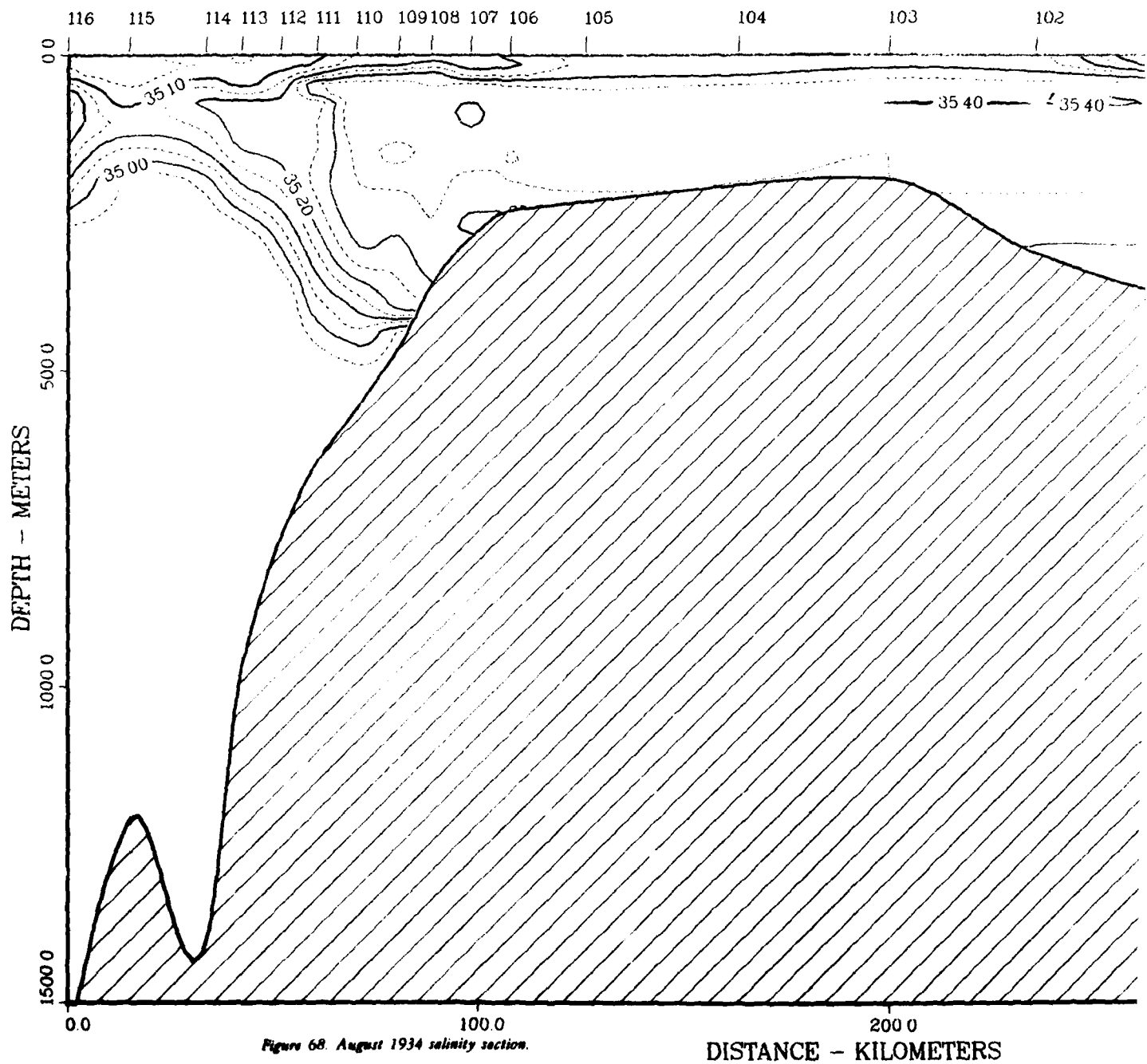
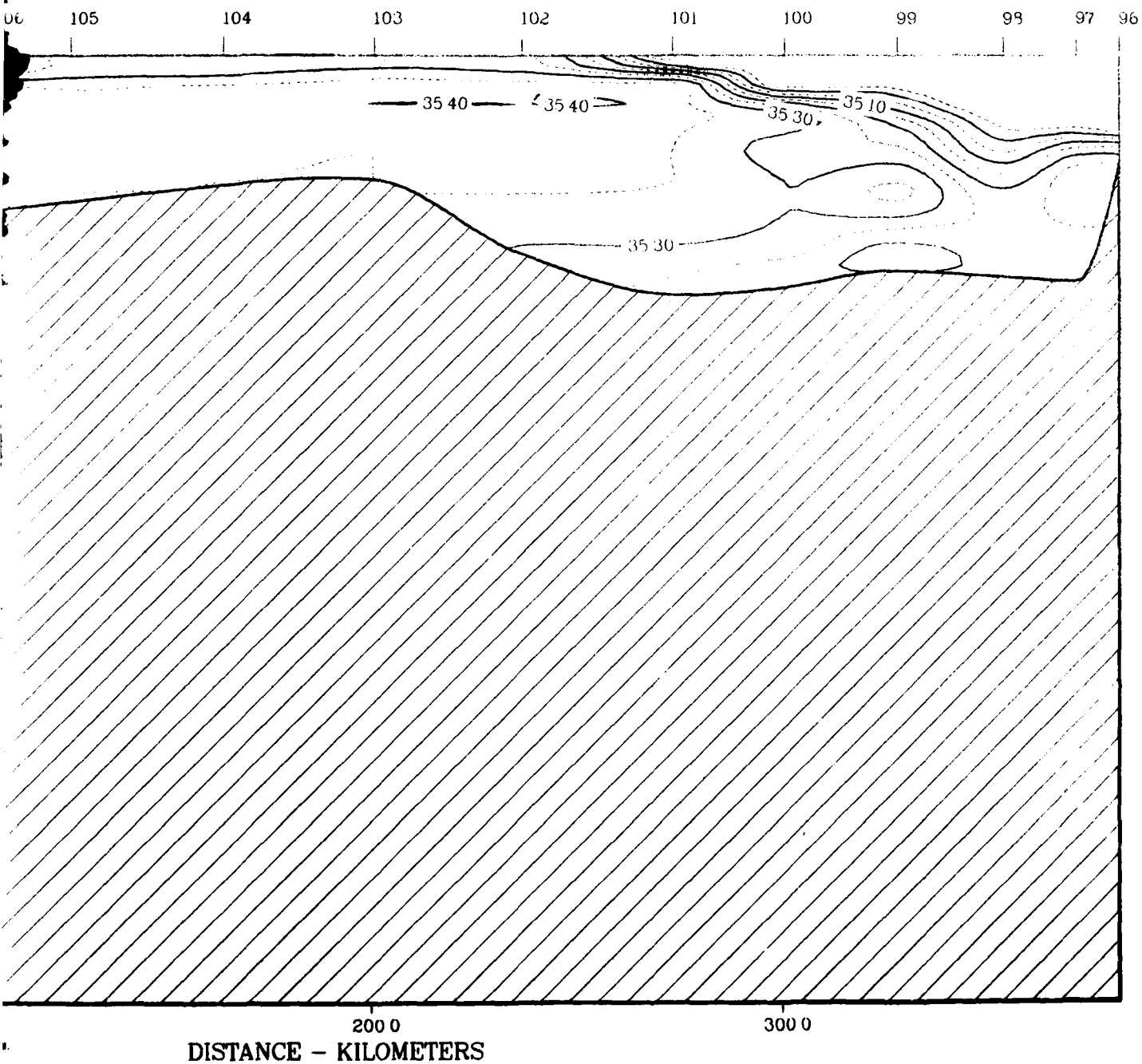


Figure 68. August 1934 salinity section.

SOGNEFJORD SECTION
FILE = ICES 1934 AUG DAT 1
SALINITY



ICES\$:193501.DAT

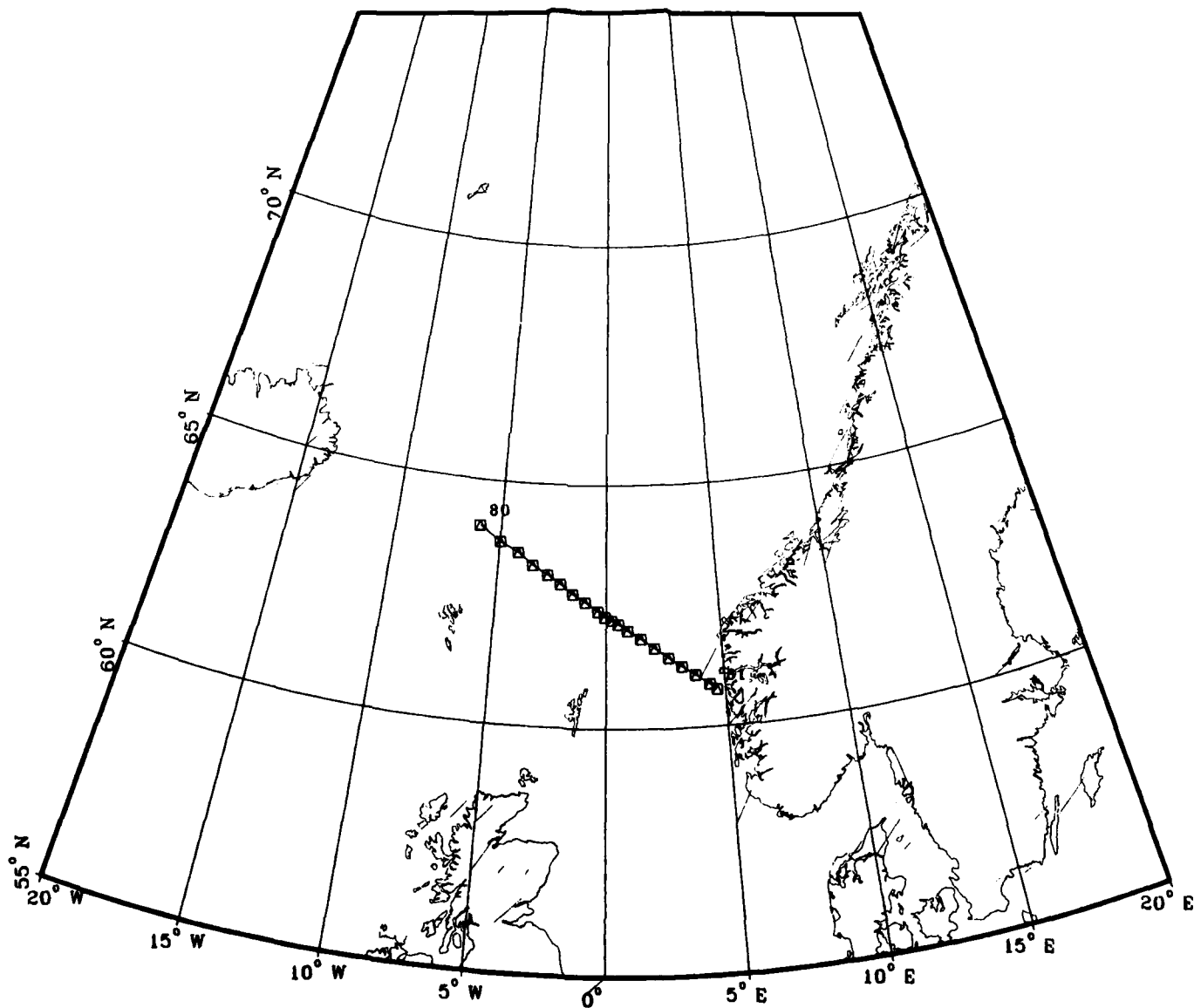


Figure 69. May 1935 (data set #1) station positions.

SOGNEFJORD SECTION
FILE = ICES\$193501.DAT
T/S PLOT

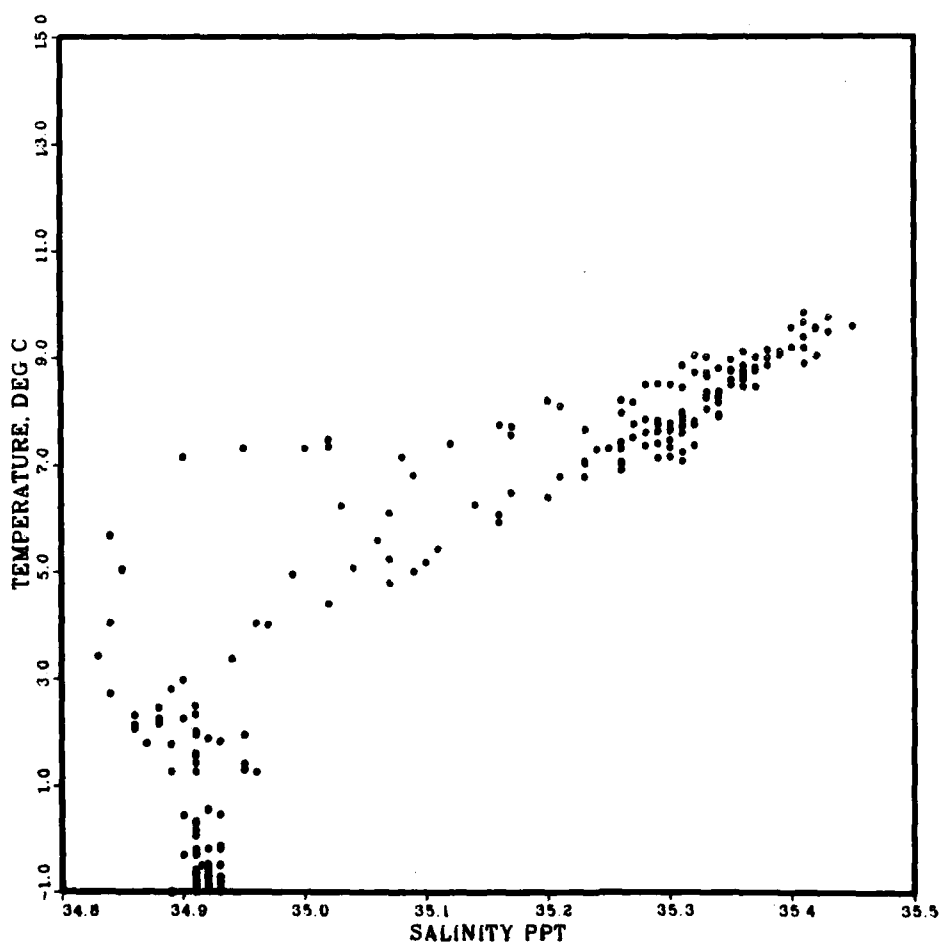


Figure 70. May 1935 (data set #1) temperature/salinity diagram.

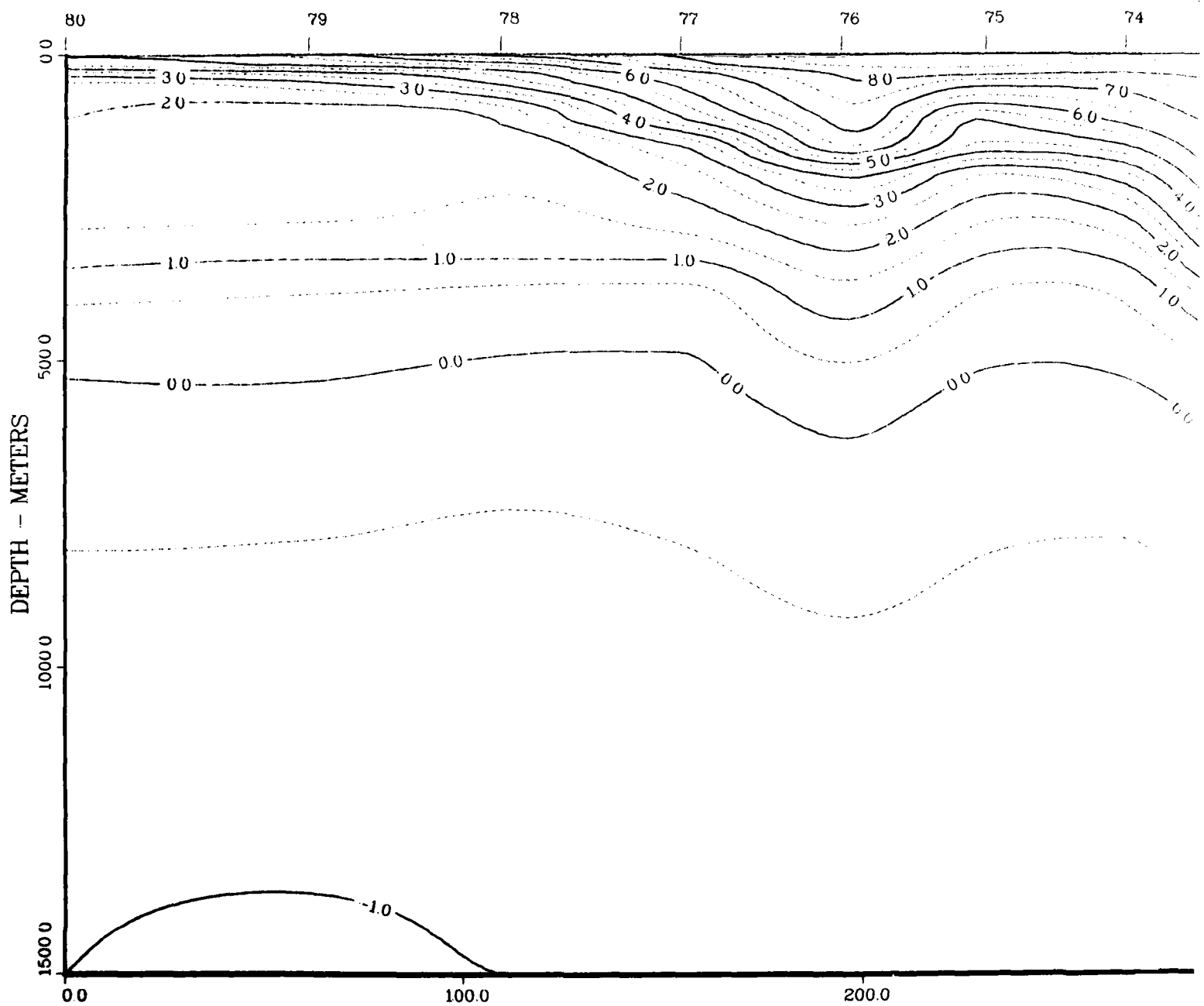
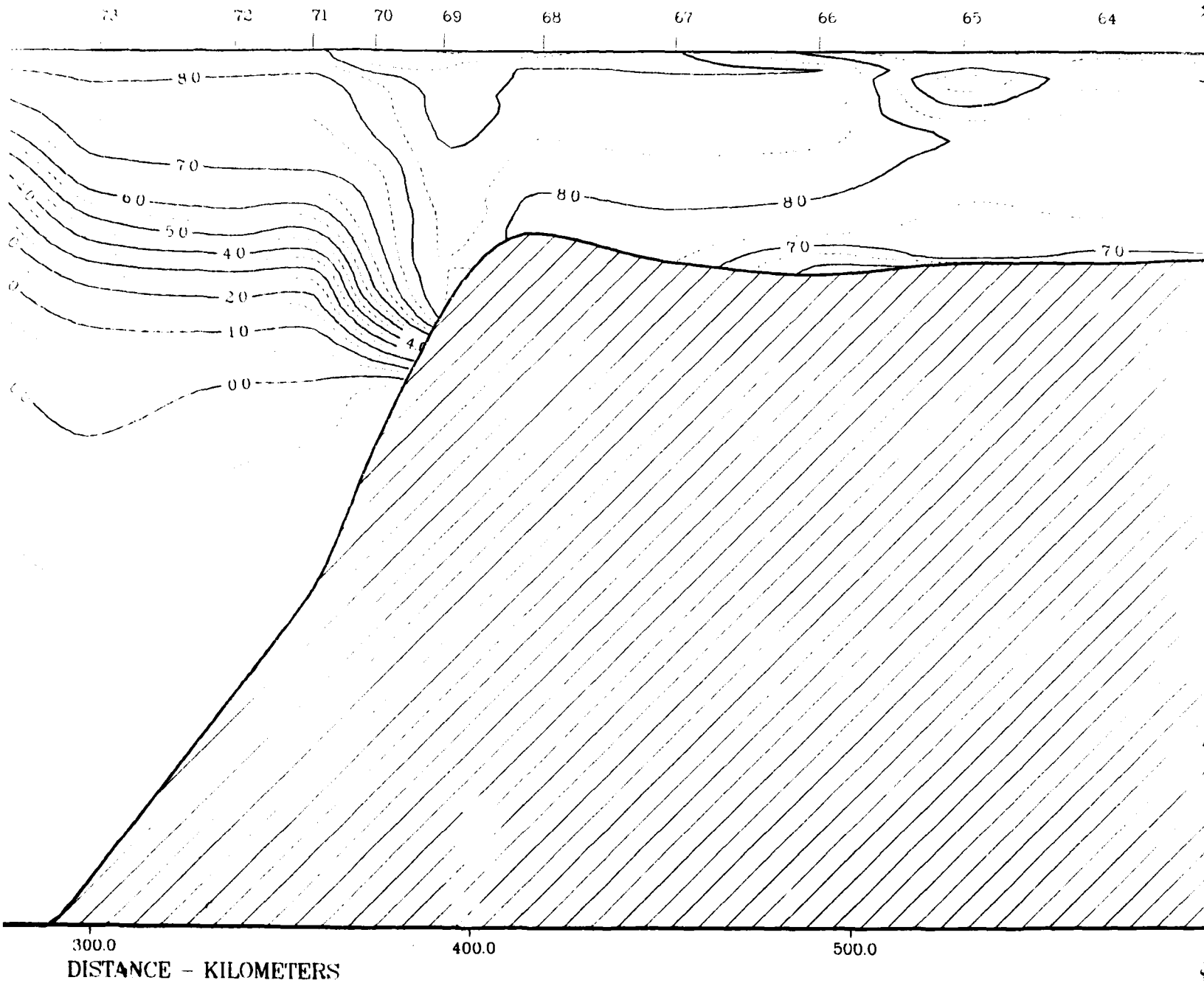
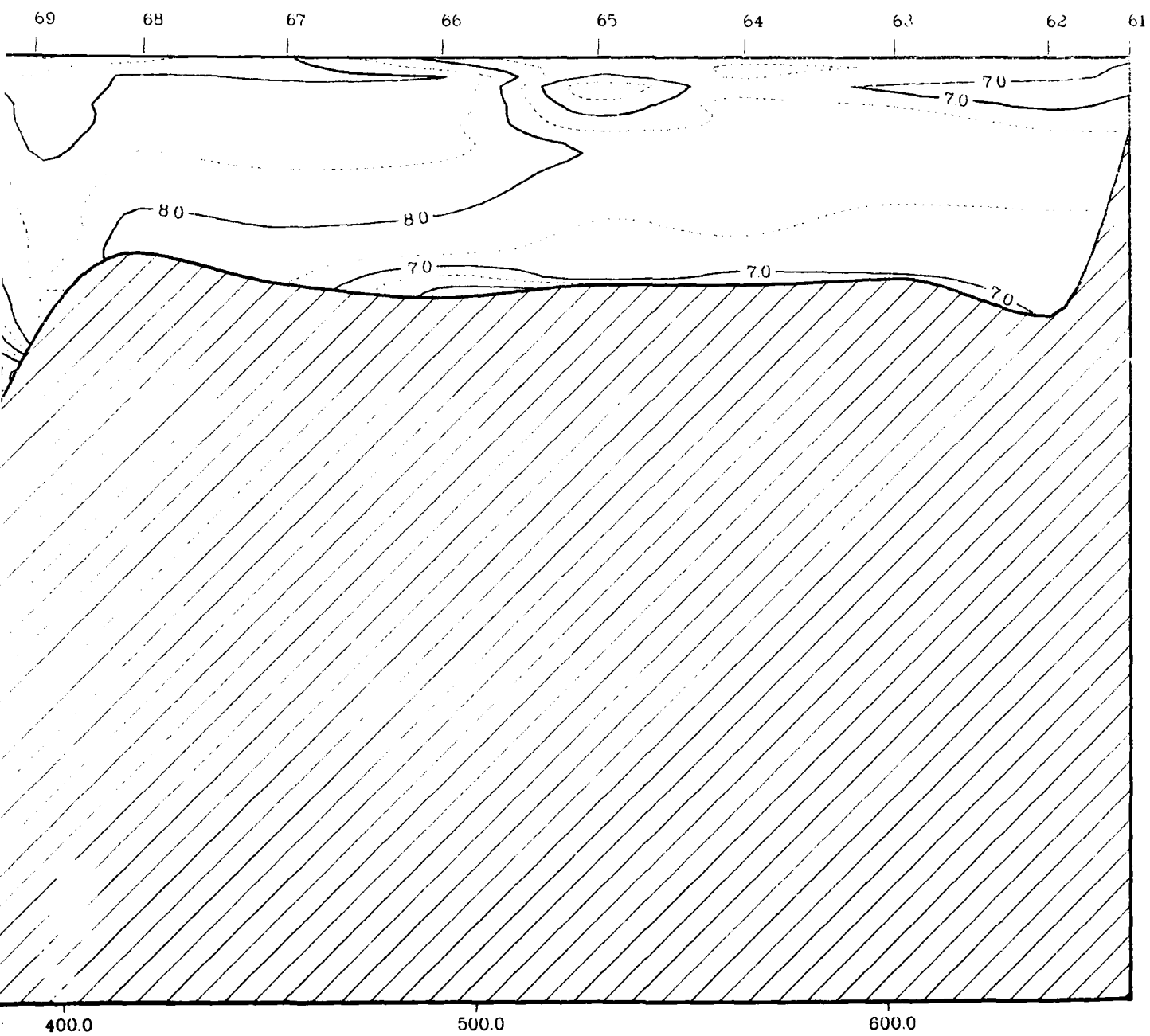


Figure 71. May 1935 (data set #1) temperature section.

SOGNEFJORD SECTION
FILE = RES#193501 DAT.1
TEMPERATURE





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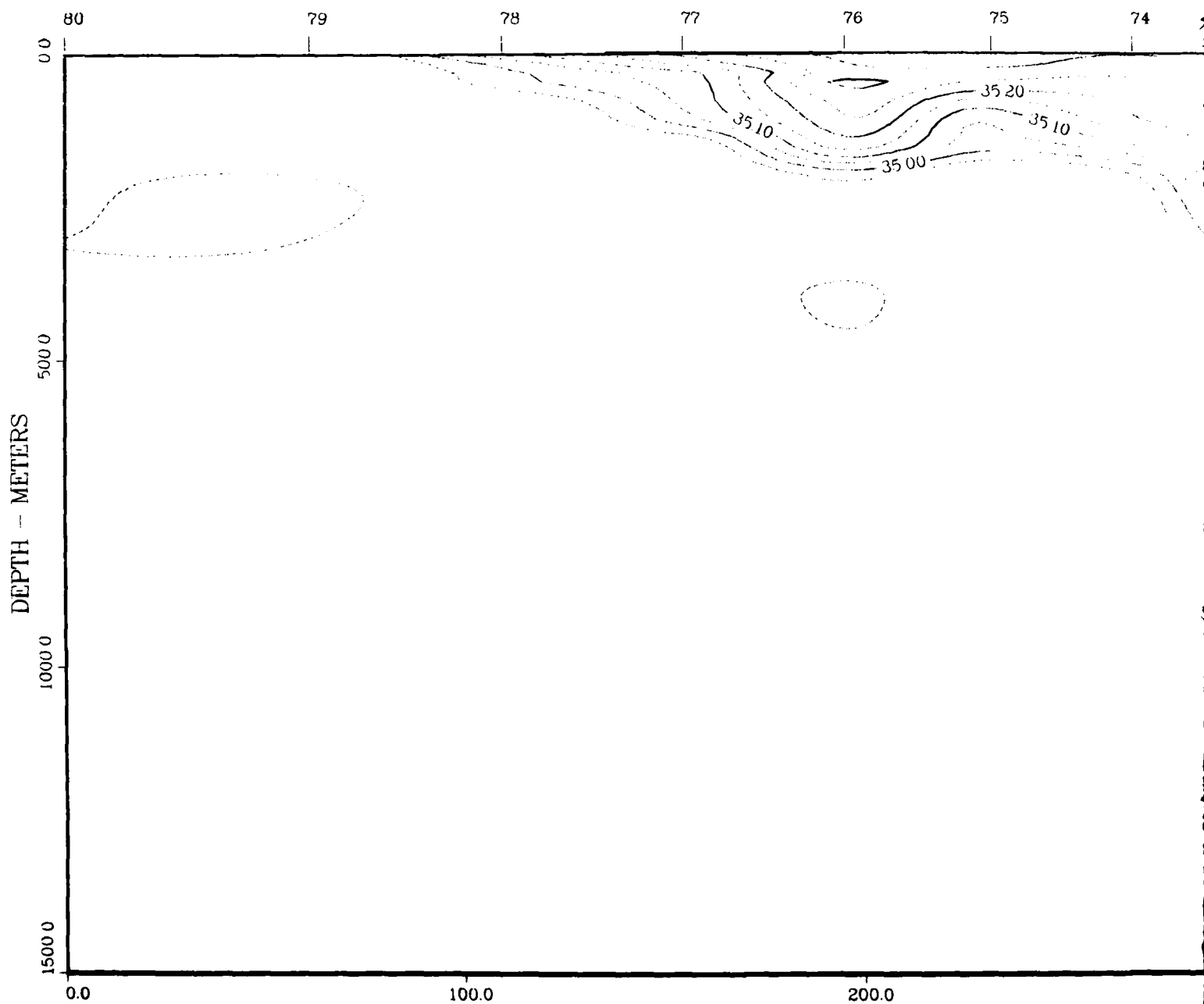
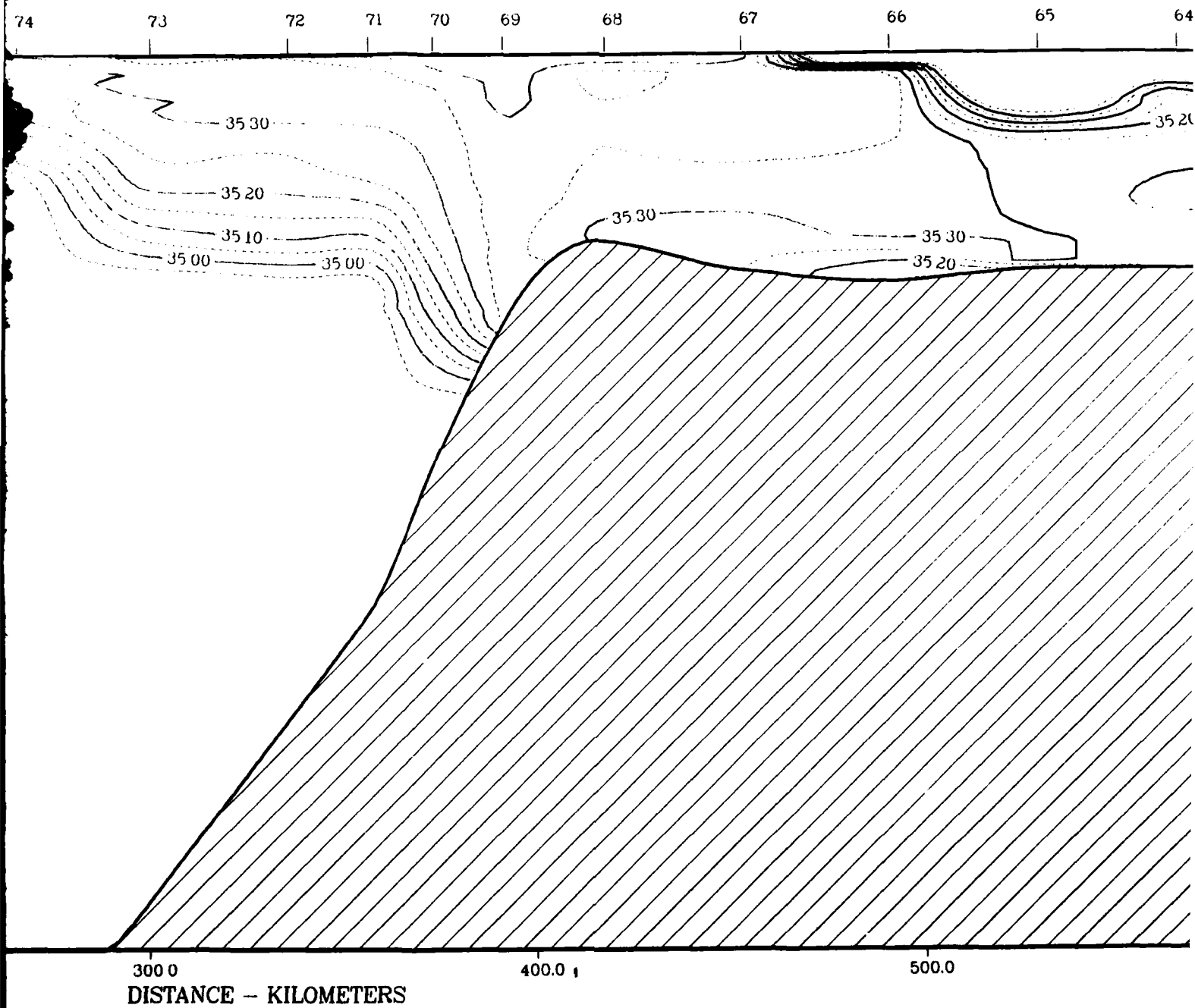
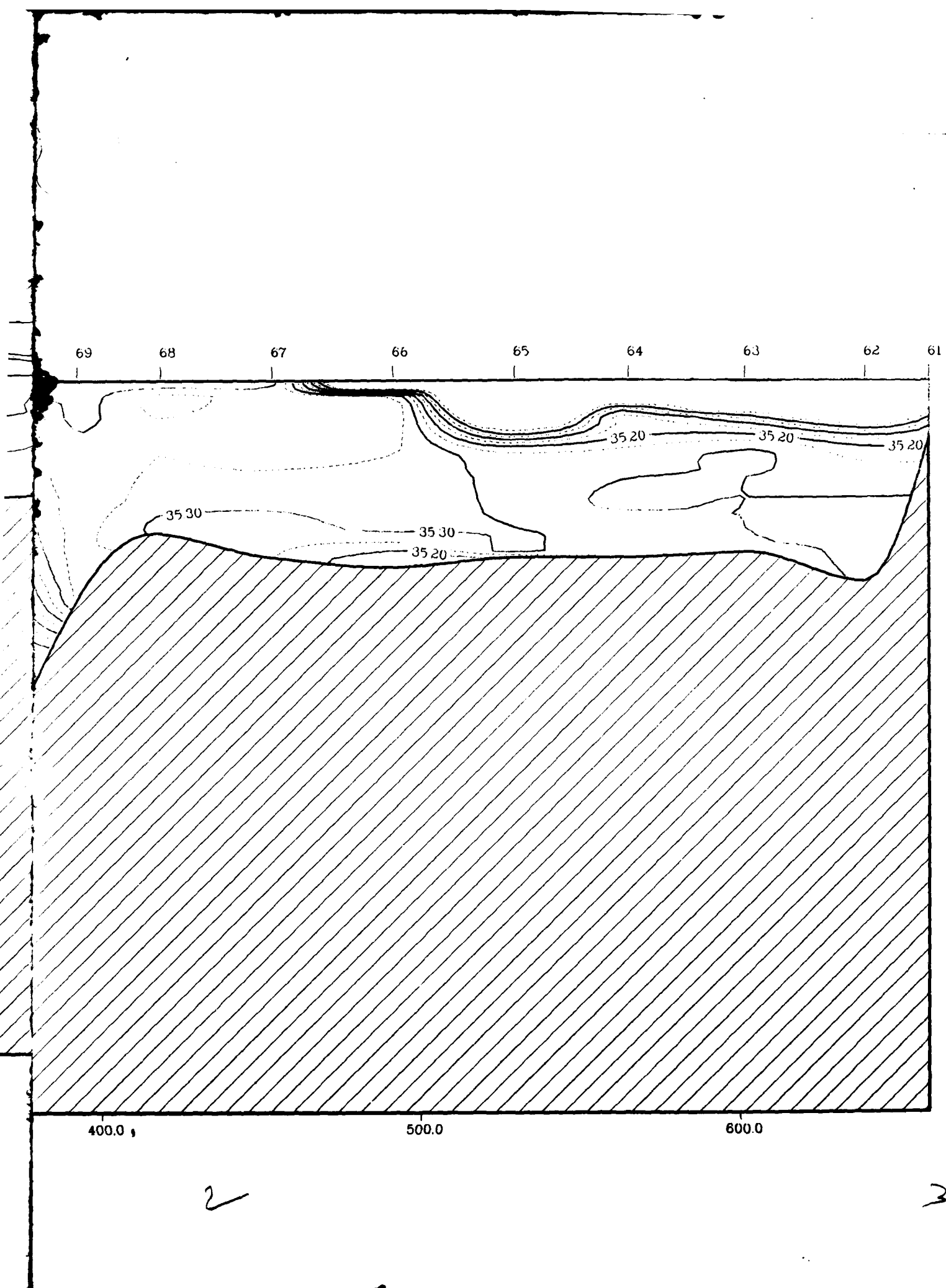


Figure 72. May 1935 (data set #1) salinity section.

SOGNEFJORD SECTION
FILE = ICES\$193501.DAT.1
SALINITY





ICES\$:1935R3.DAT

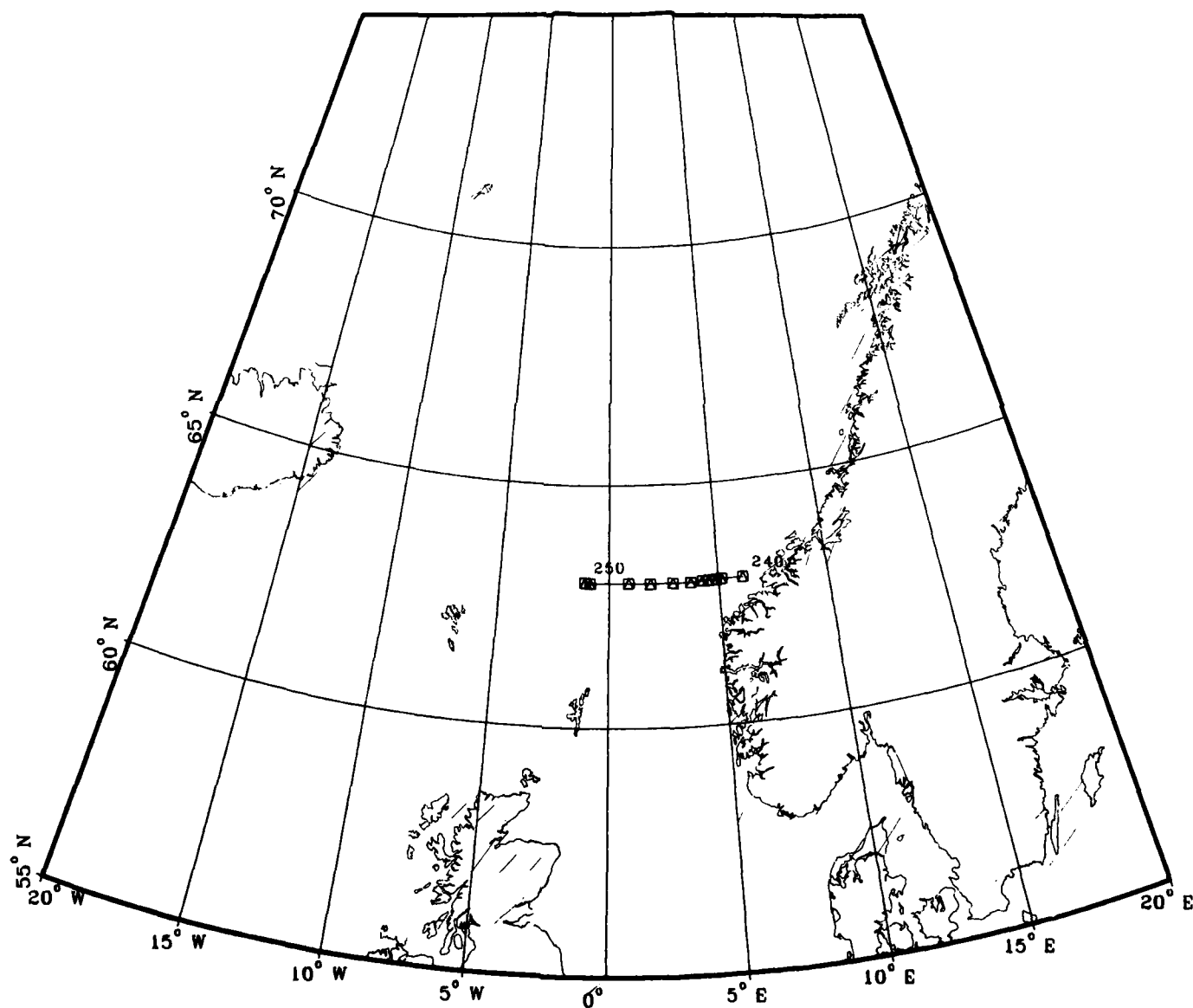


Figure 73. July 1935 (data set #3) station positions.

SOGNEFJORD SECTION
FILE = ICES\$1935R3.DAT
T/S PLOT

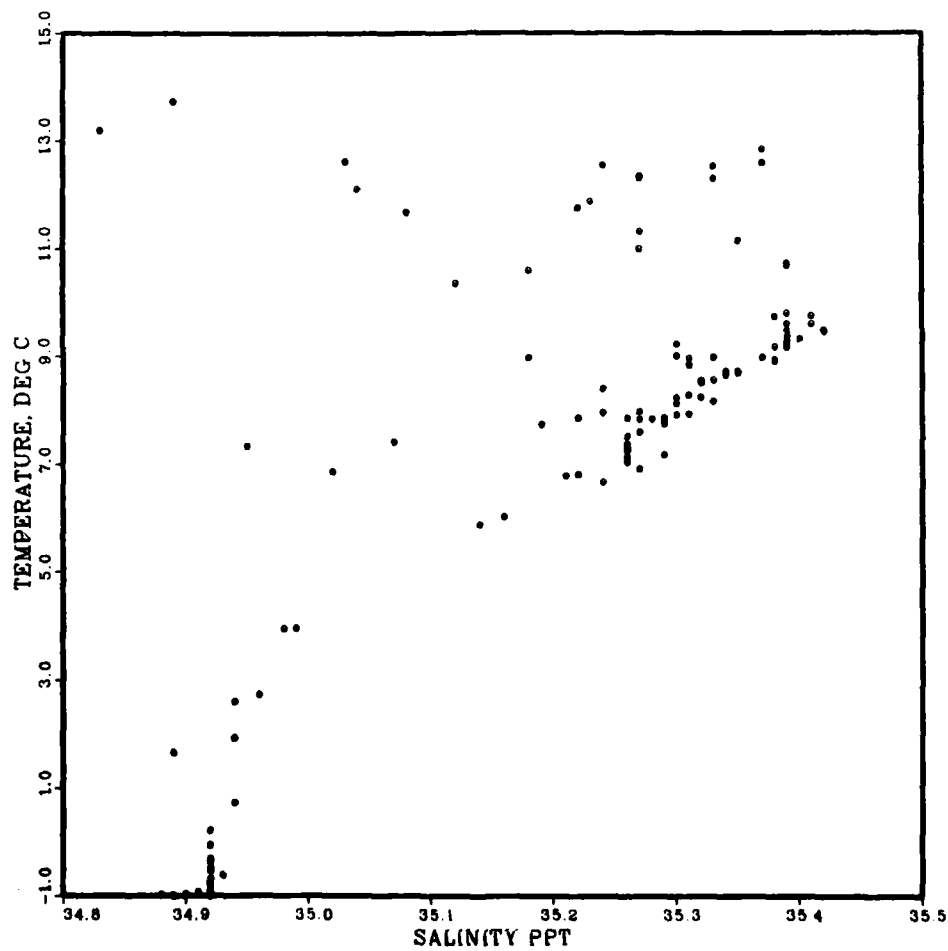


Figure 74. July 1935 (data set #3) temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$.1935R3 DAT:1
 TEMPERATURE

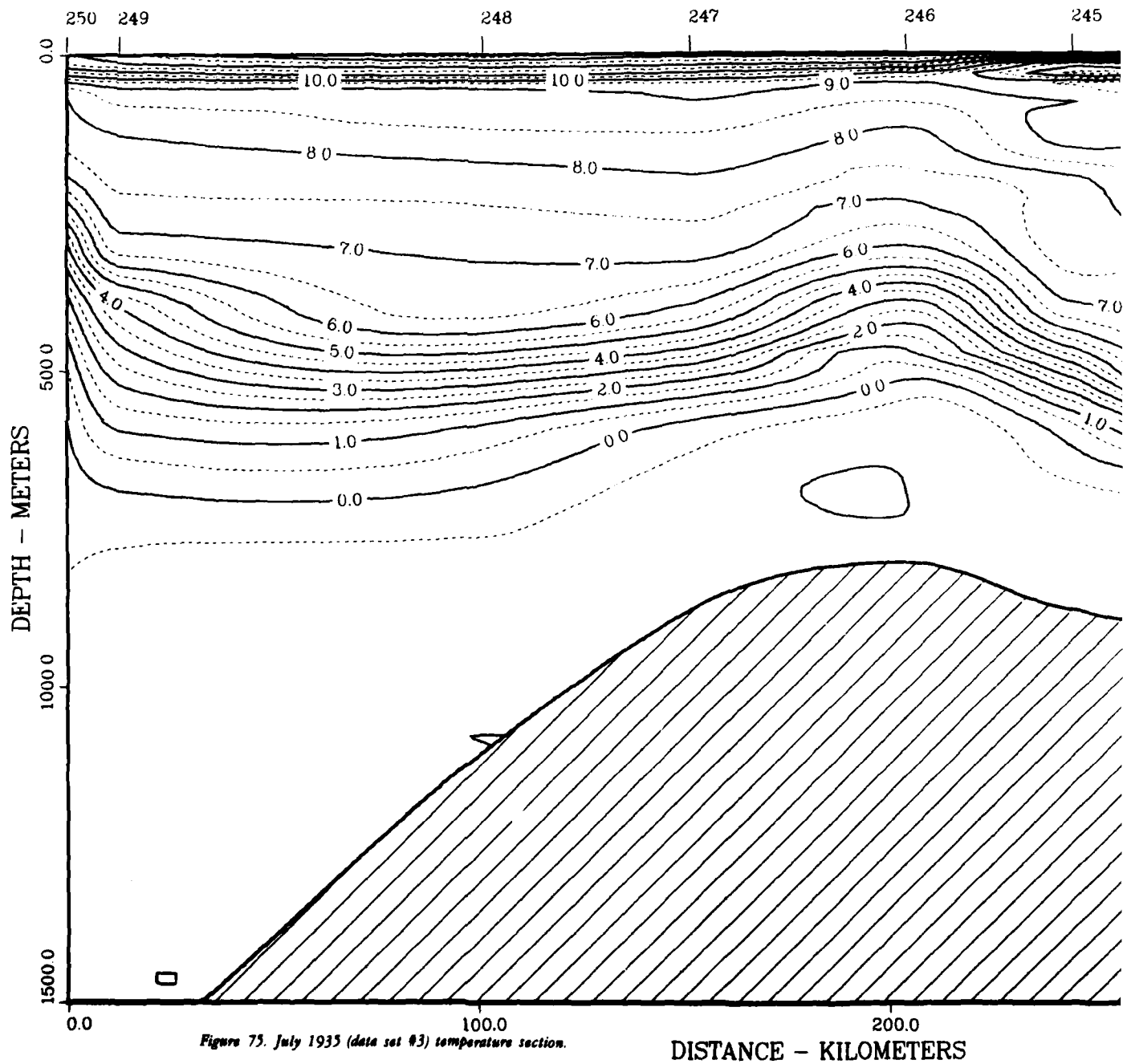
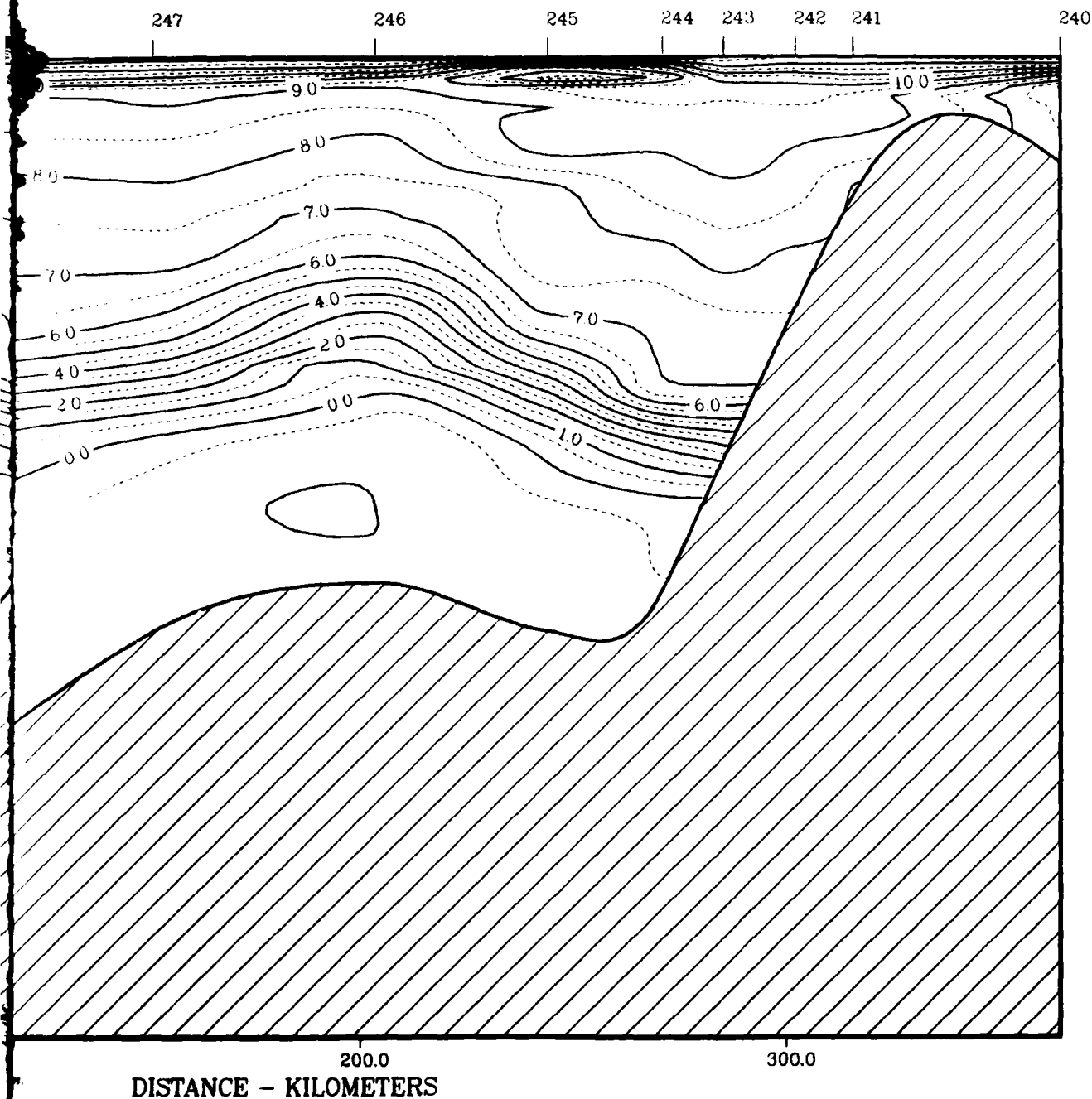


Figure 75. July 1935 (data set #3) temperature section.

SOGNEFJORD SECTION
FILE = ICES\$.1935R3 DAT;1
TEMPERATURE



2

SOGNEFJORD SECTION
FILE = ICES\$1935R3 DAT-1
SALINITY

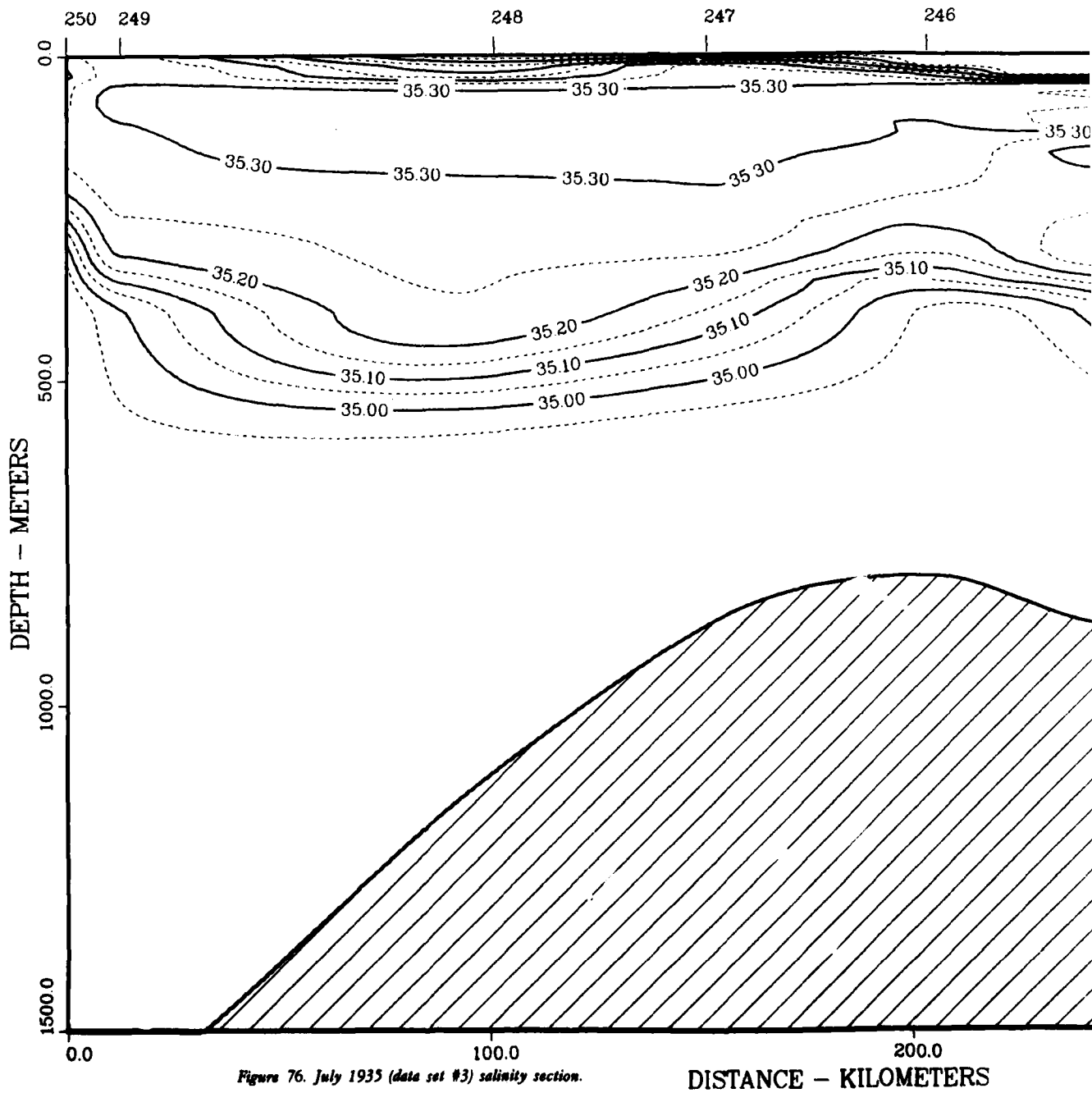


Figure 76. July 1935 (data set #3) salinity section.

FILE = ICES1935R3 DAT1
SALINITY



ICES\$:1935S4.DAT

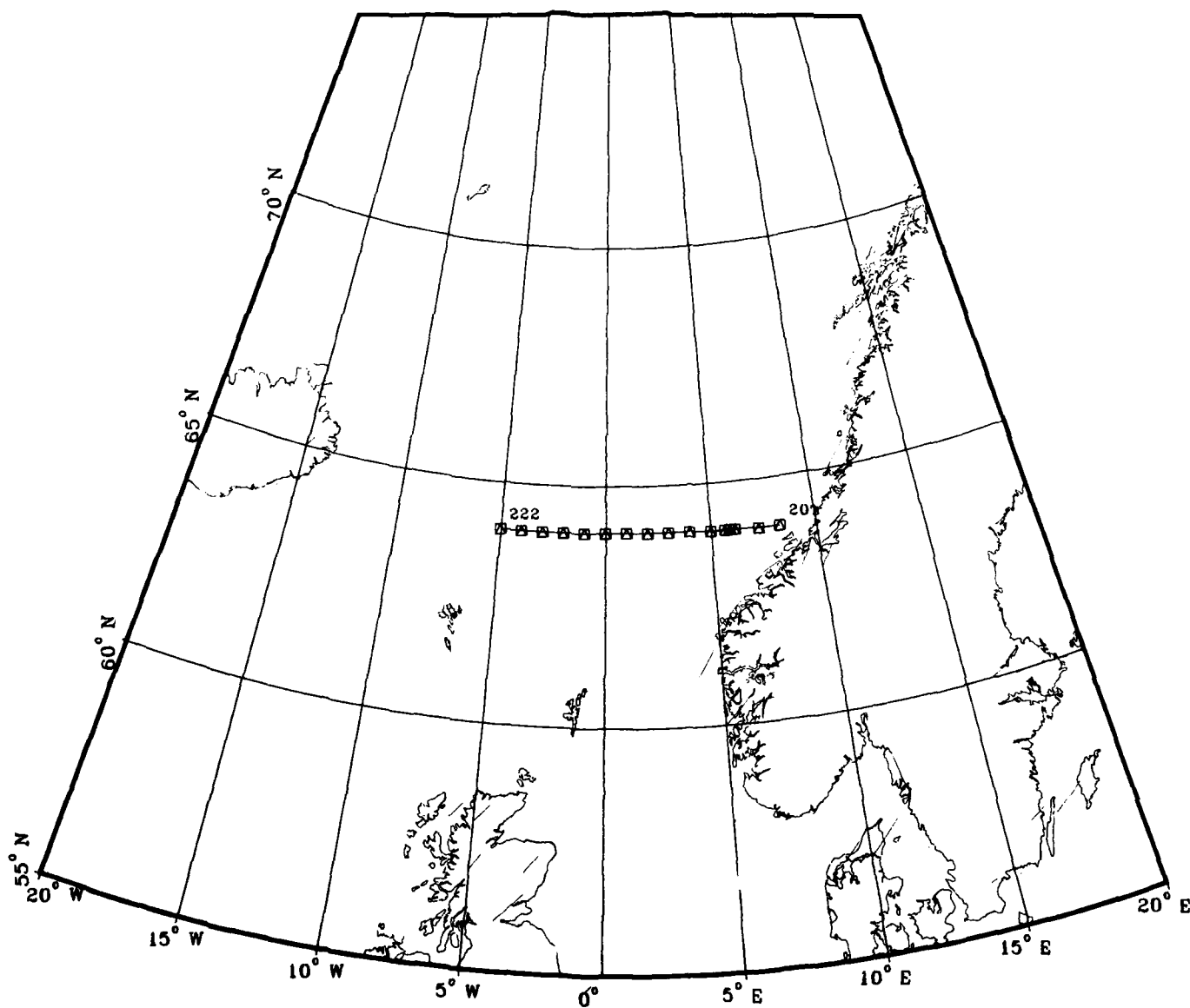


Figure 77. July 1935 (data set #4) station positions.

SOGNEFJORD SECTION
FILE = ICES\$.1935S4.DAT
T/S PLOT

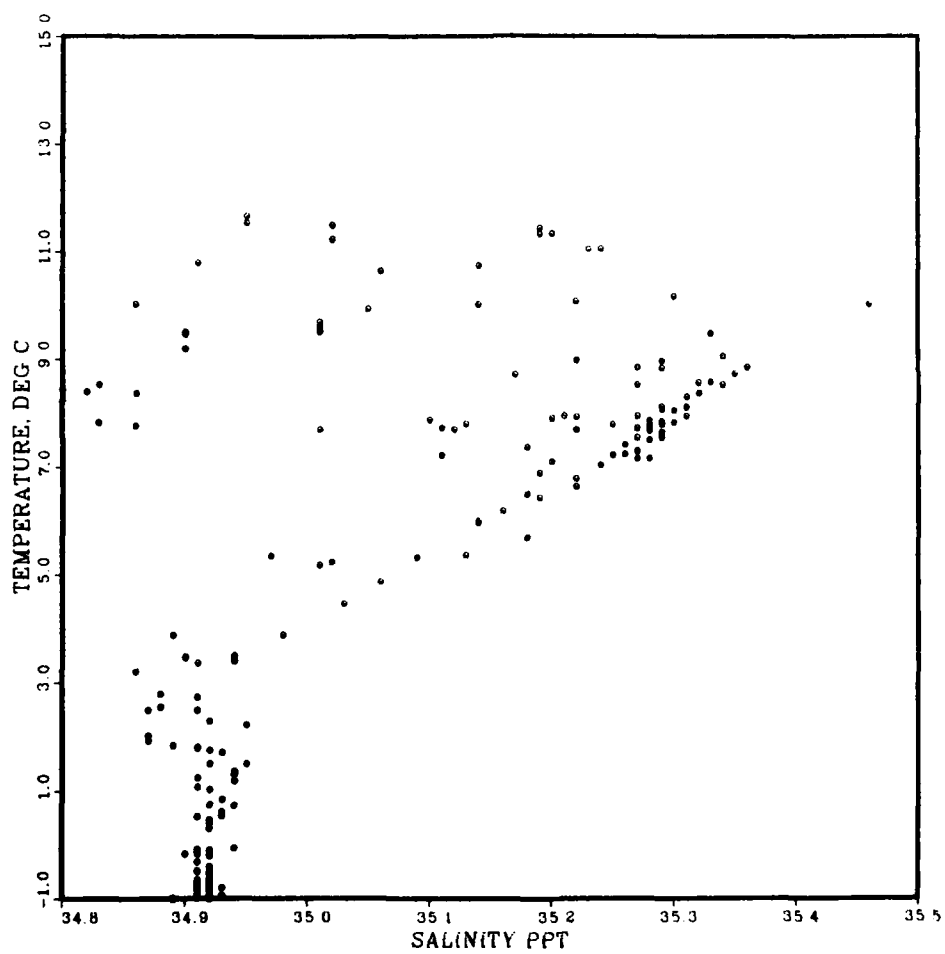


Figure 78. July 1935 (data set #4) temperature/salinity diagram.

SOGN
FILE

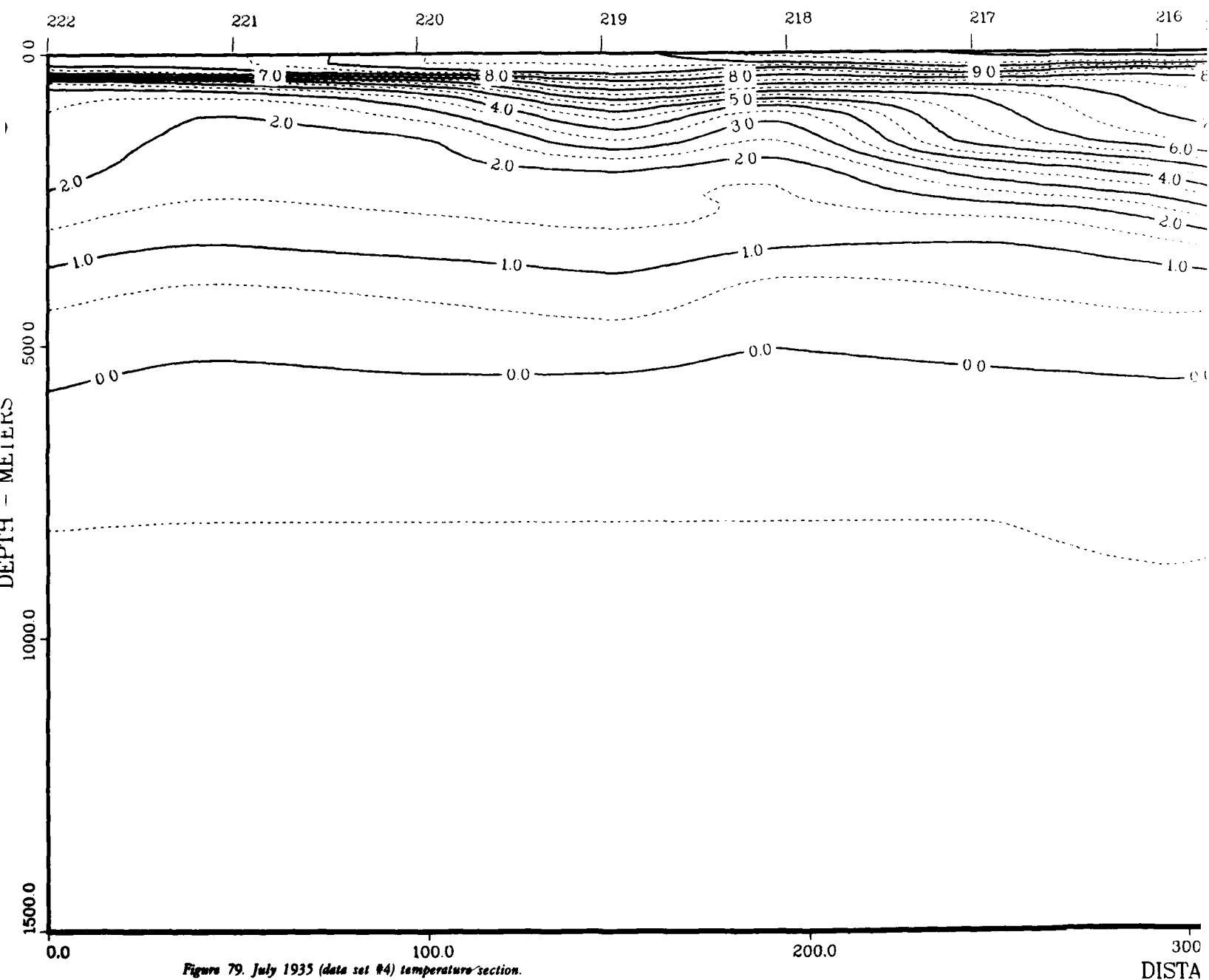
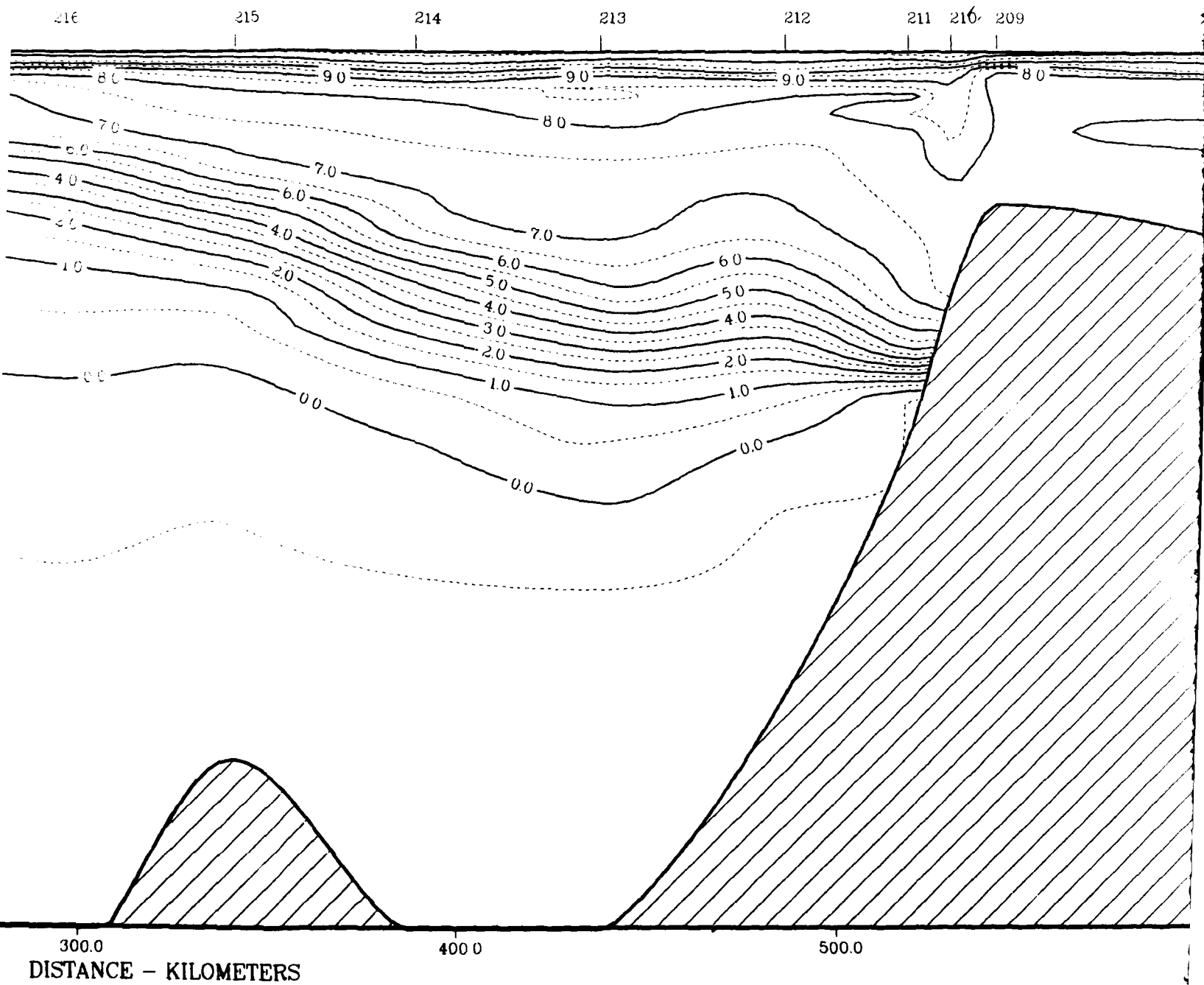
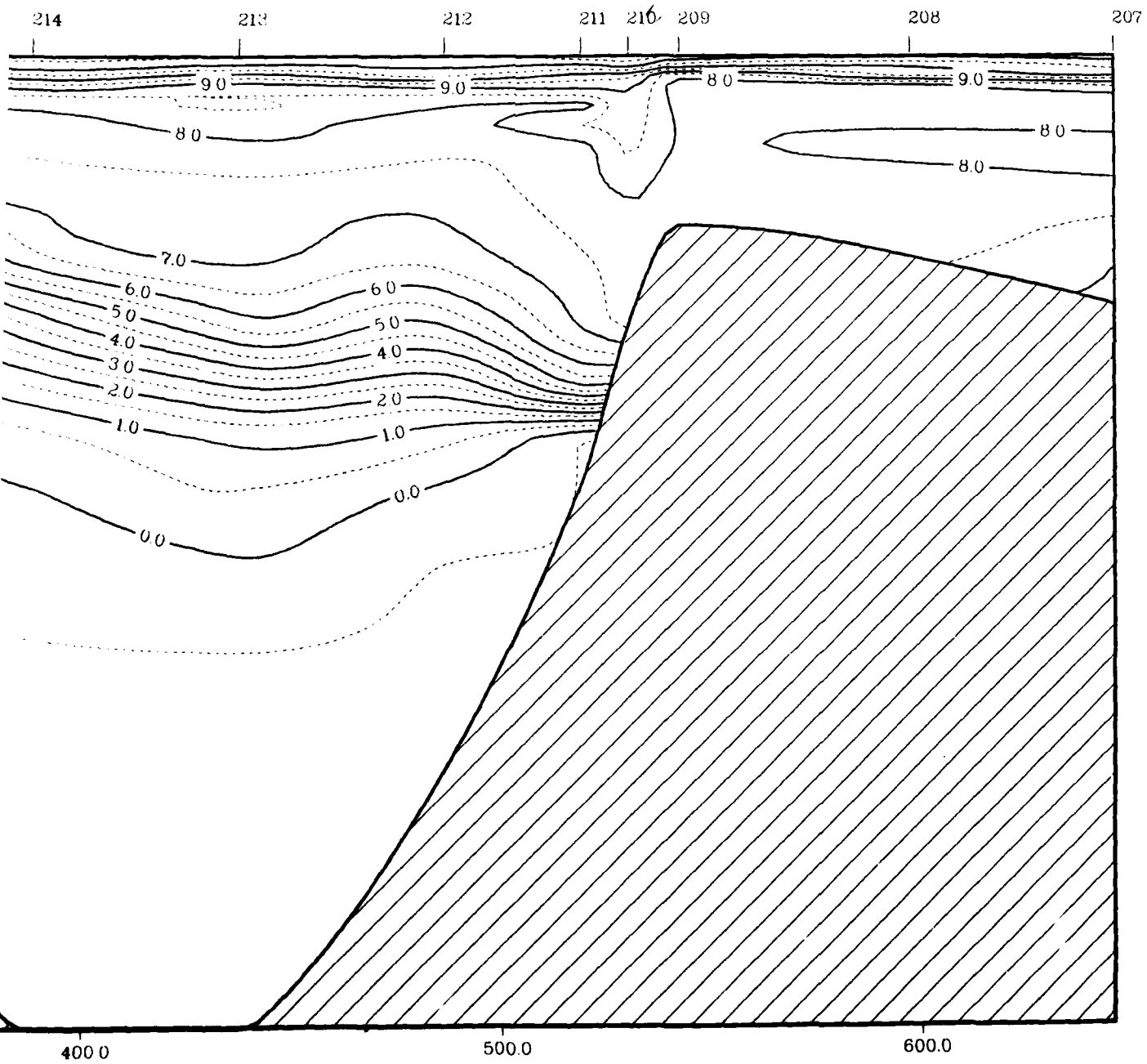


Figure 79. July 1935 (data set #4) temperature section.

SOGNEFJORD SECTION
FILE = ICES1935S4.DAT.1
TEMPERATURE





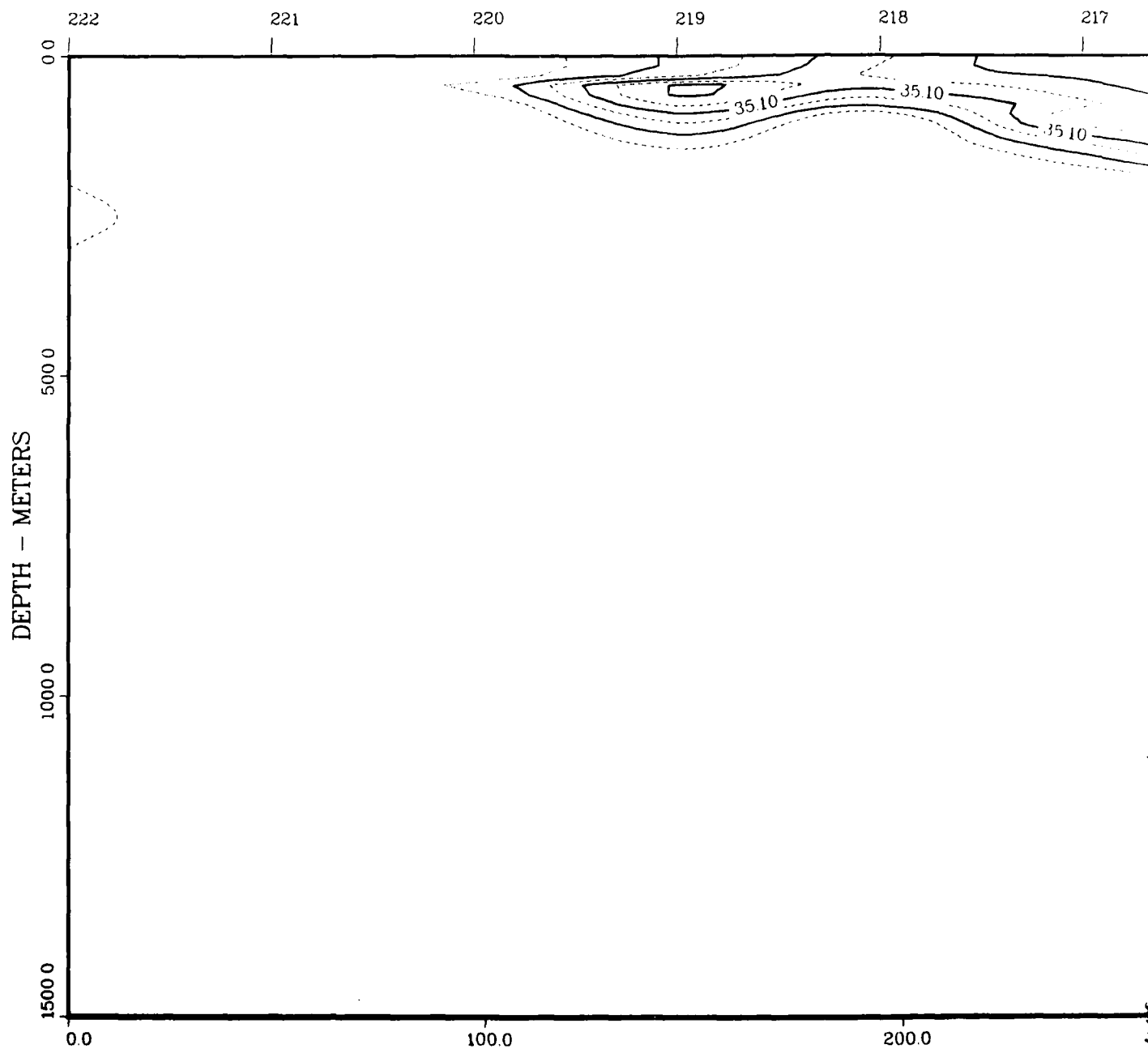
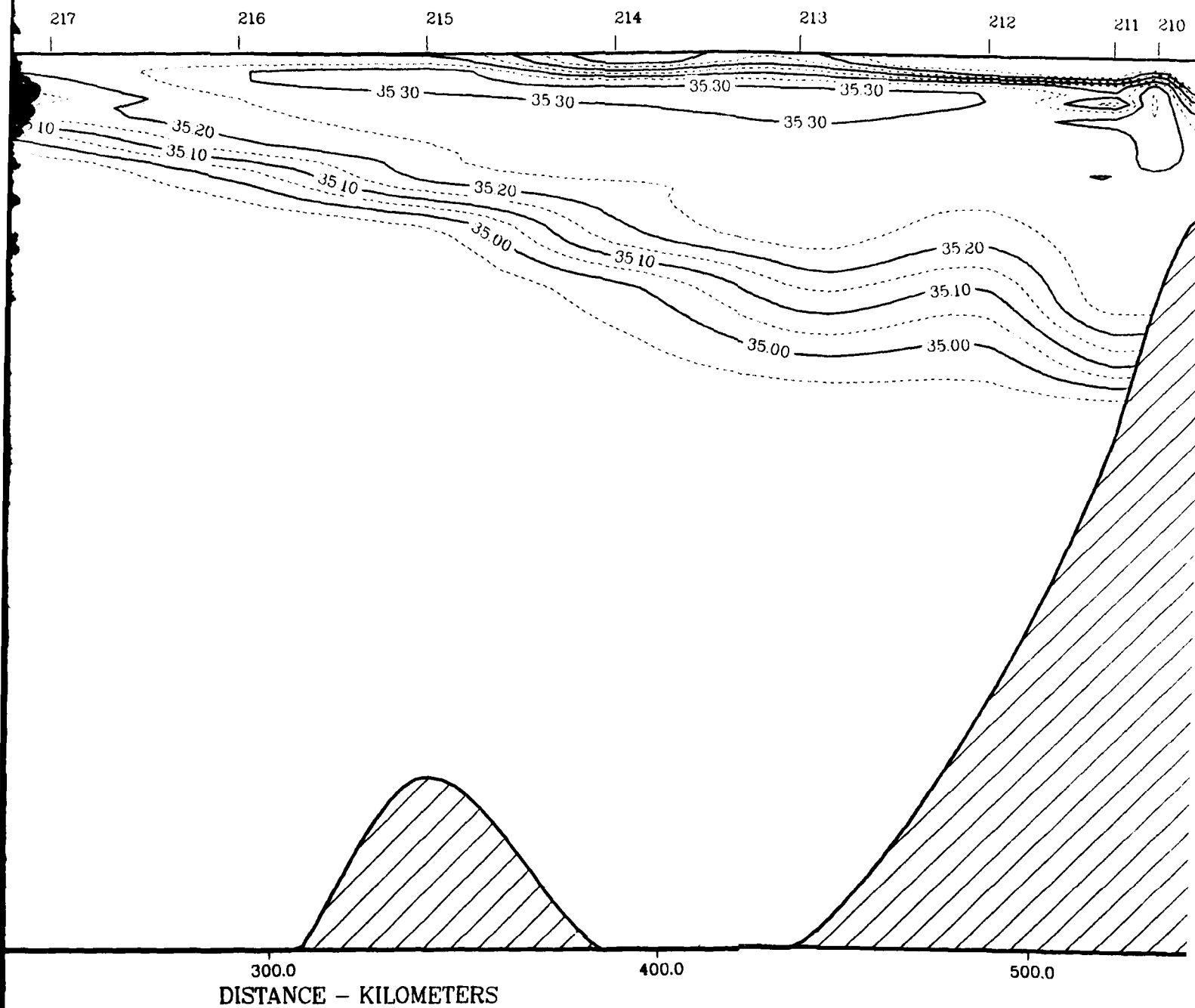


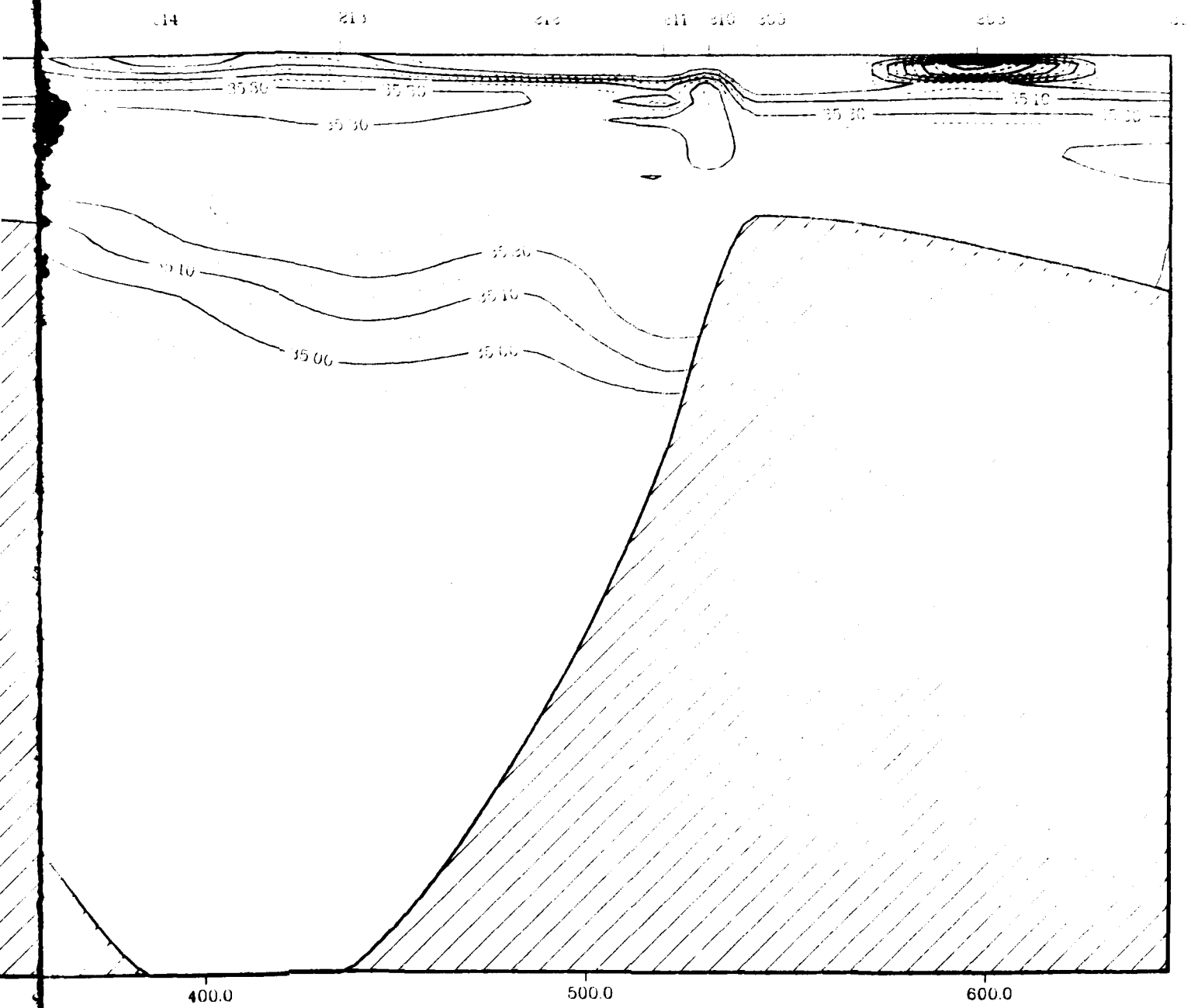
Figure 80. July 1935 (data set #4) salinity section.

SOGNEFJORD SECTION

FILE = ICES\$1935S4.DAT.1

SALINITY





ICES\$:1935T5.DAT

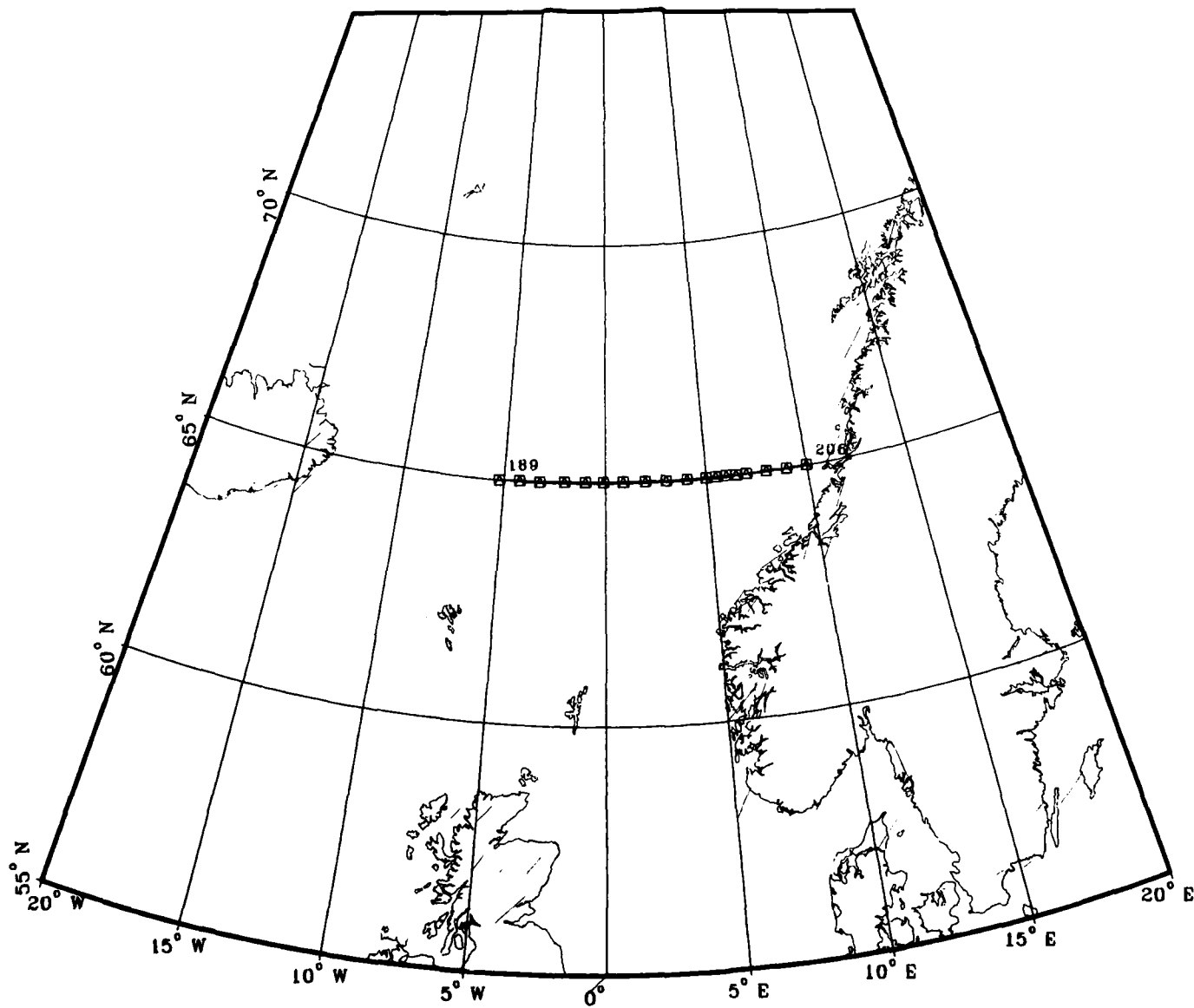


Figure 81. July 1935 (data set #5) station positions.

SOGNEFJORD SECTION
FILE = ICES\$1935T5.DAT
T/S PLOT

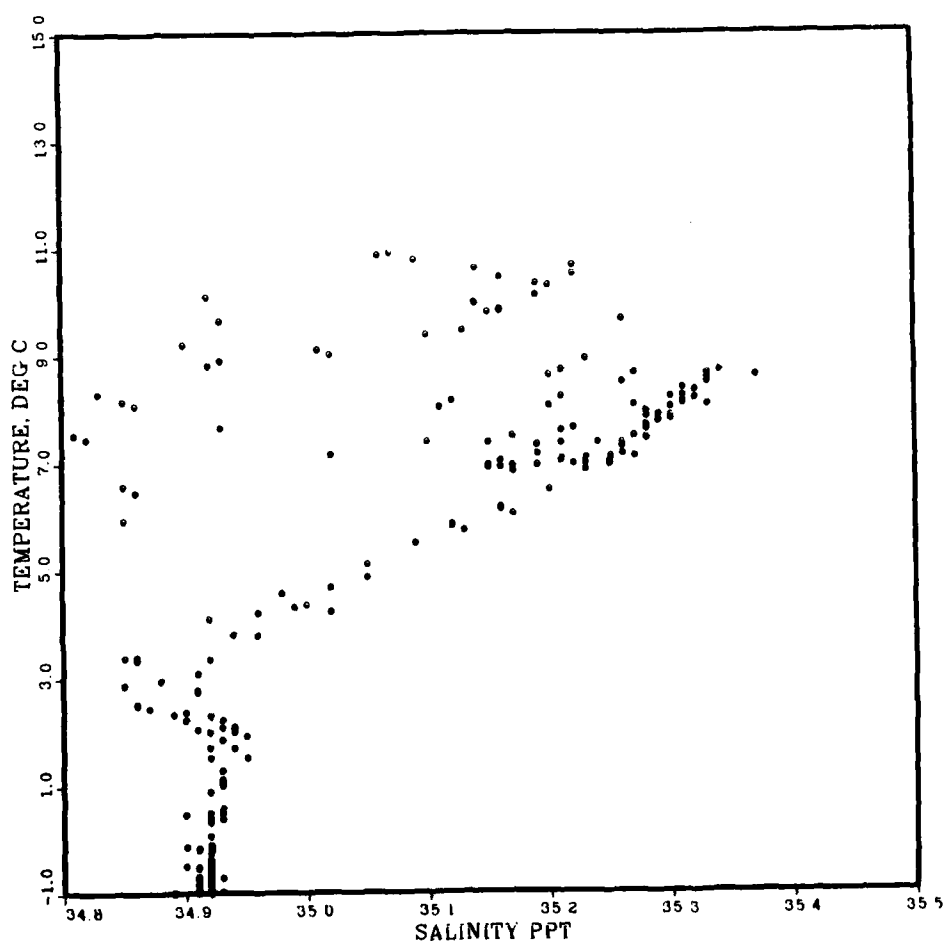


Figure 82. July 1935 (data set #5) temperature/salinity diagram.

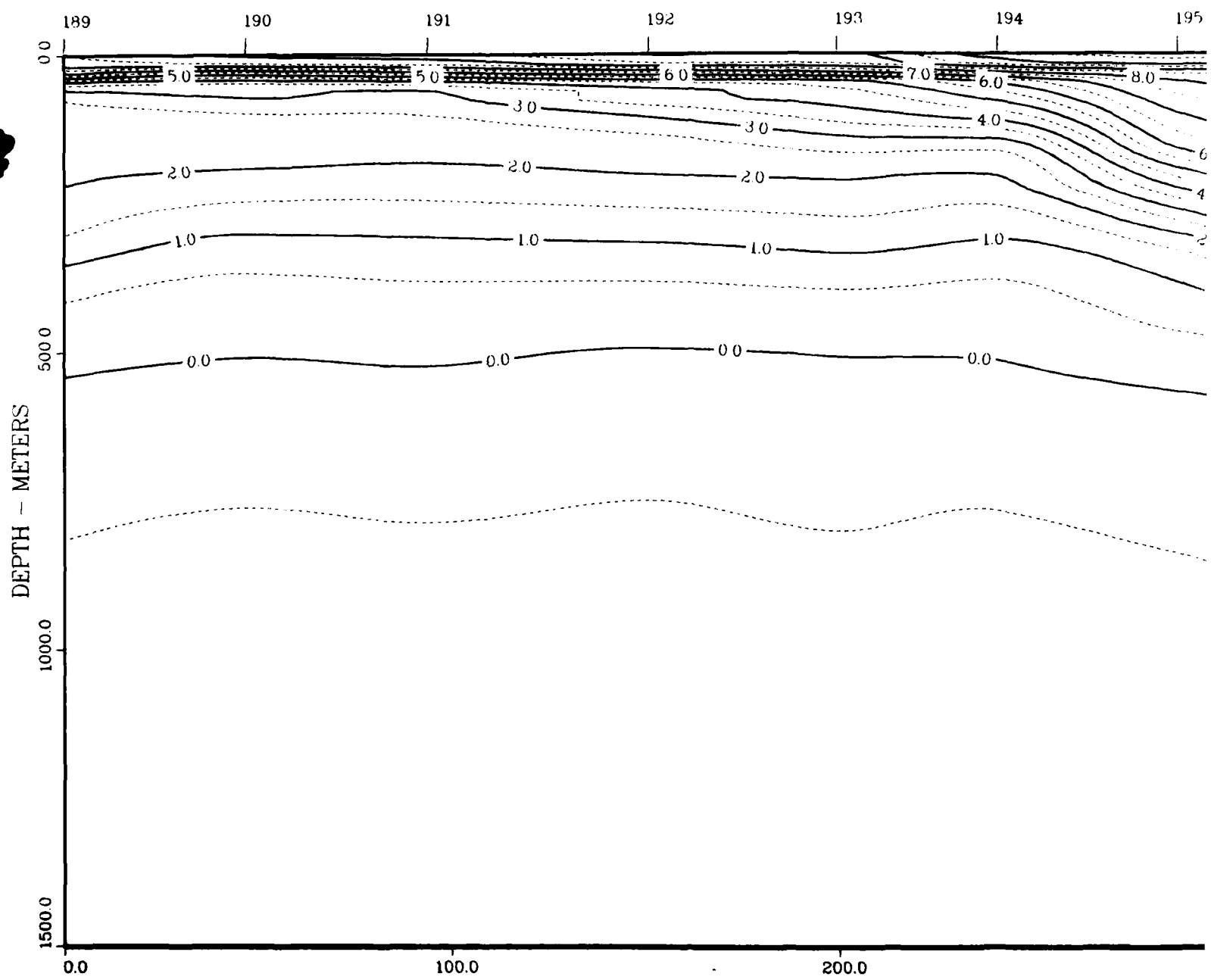
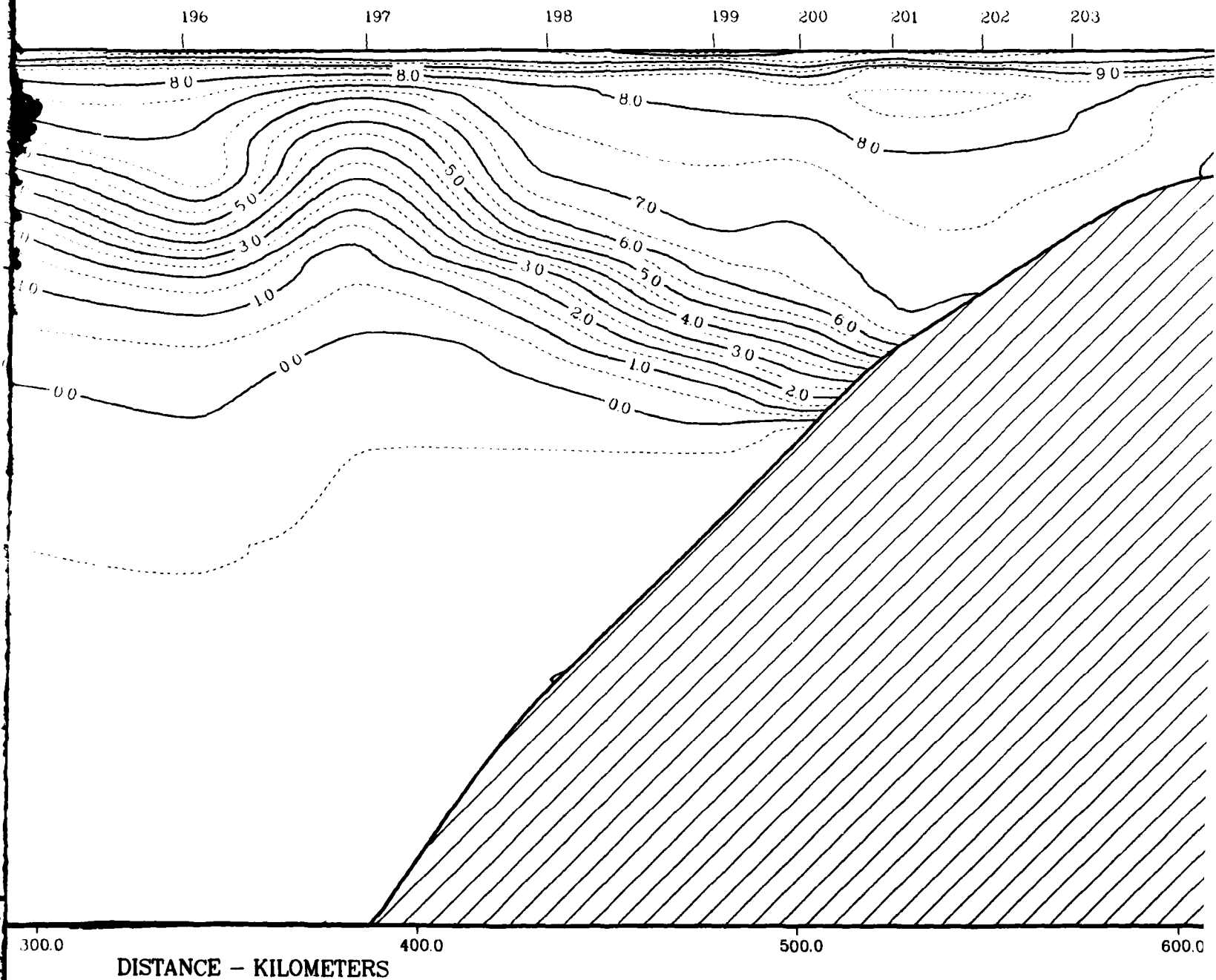
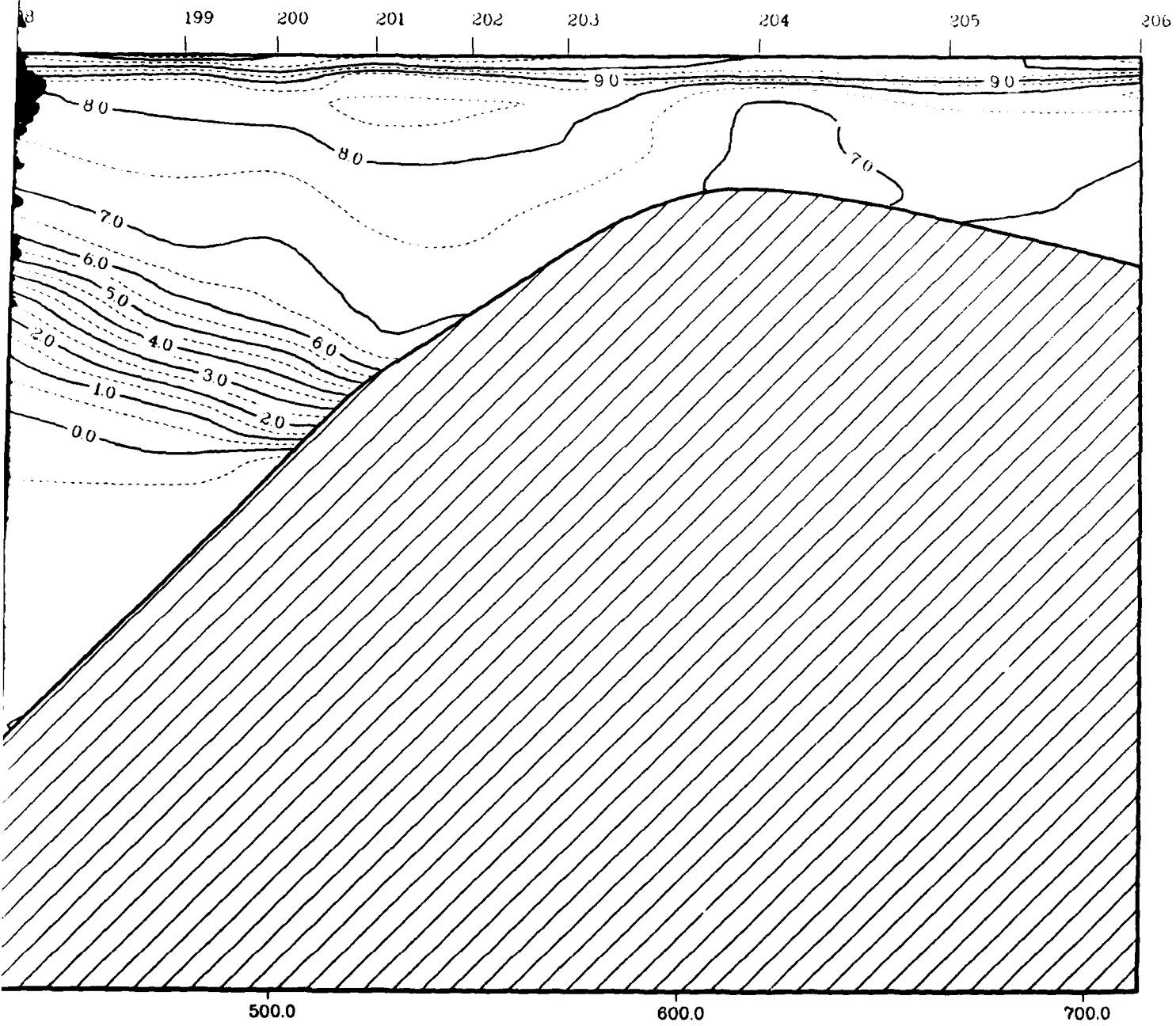


Figure 83. July 1935 (data set #5) temperature section.

SOGNEFJORD SECTION
FILE = ICES\$19.35T5 DAT.1
TEMPERATURE



2



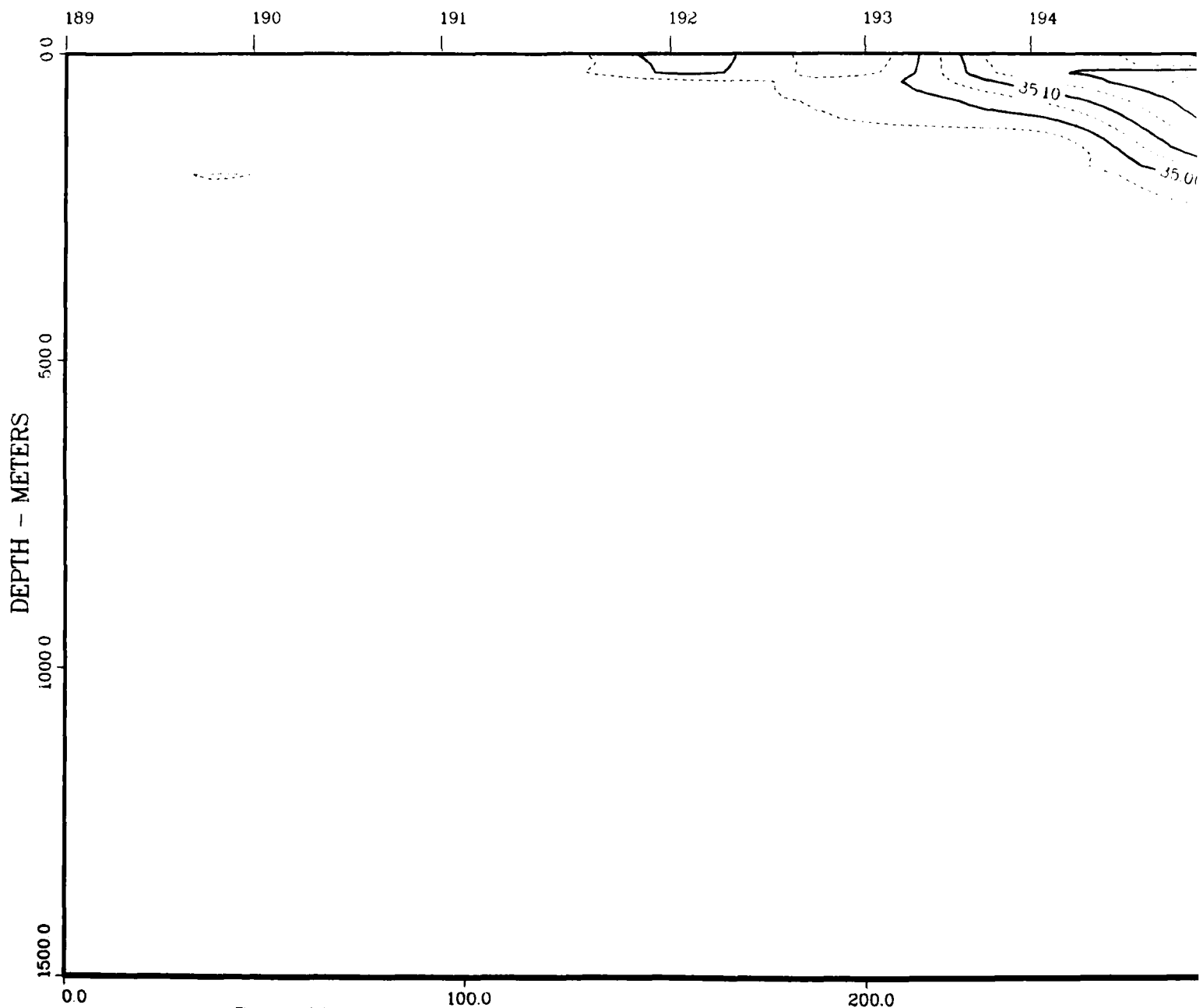
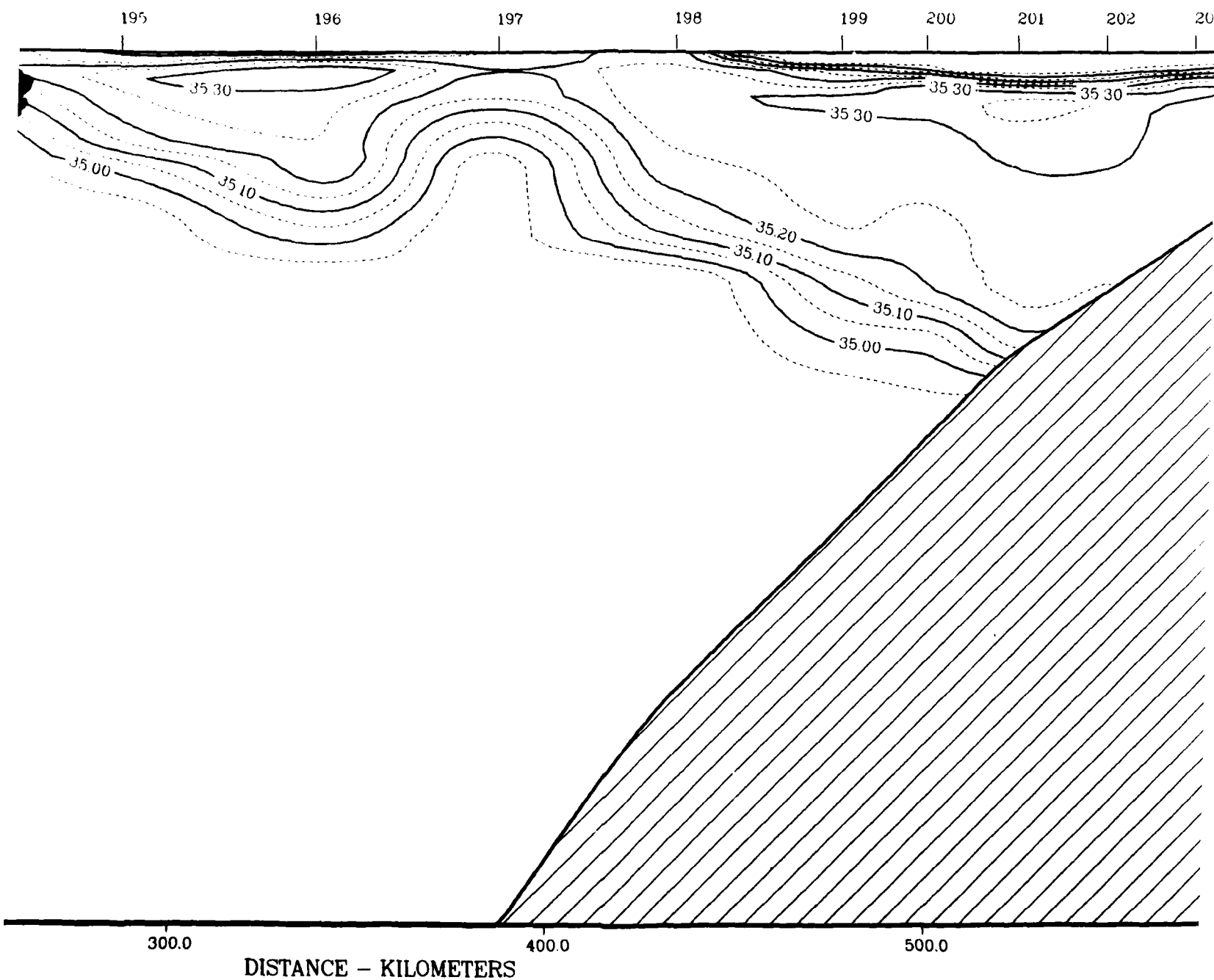
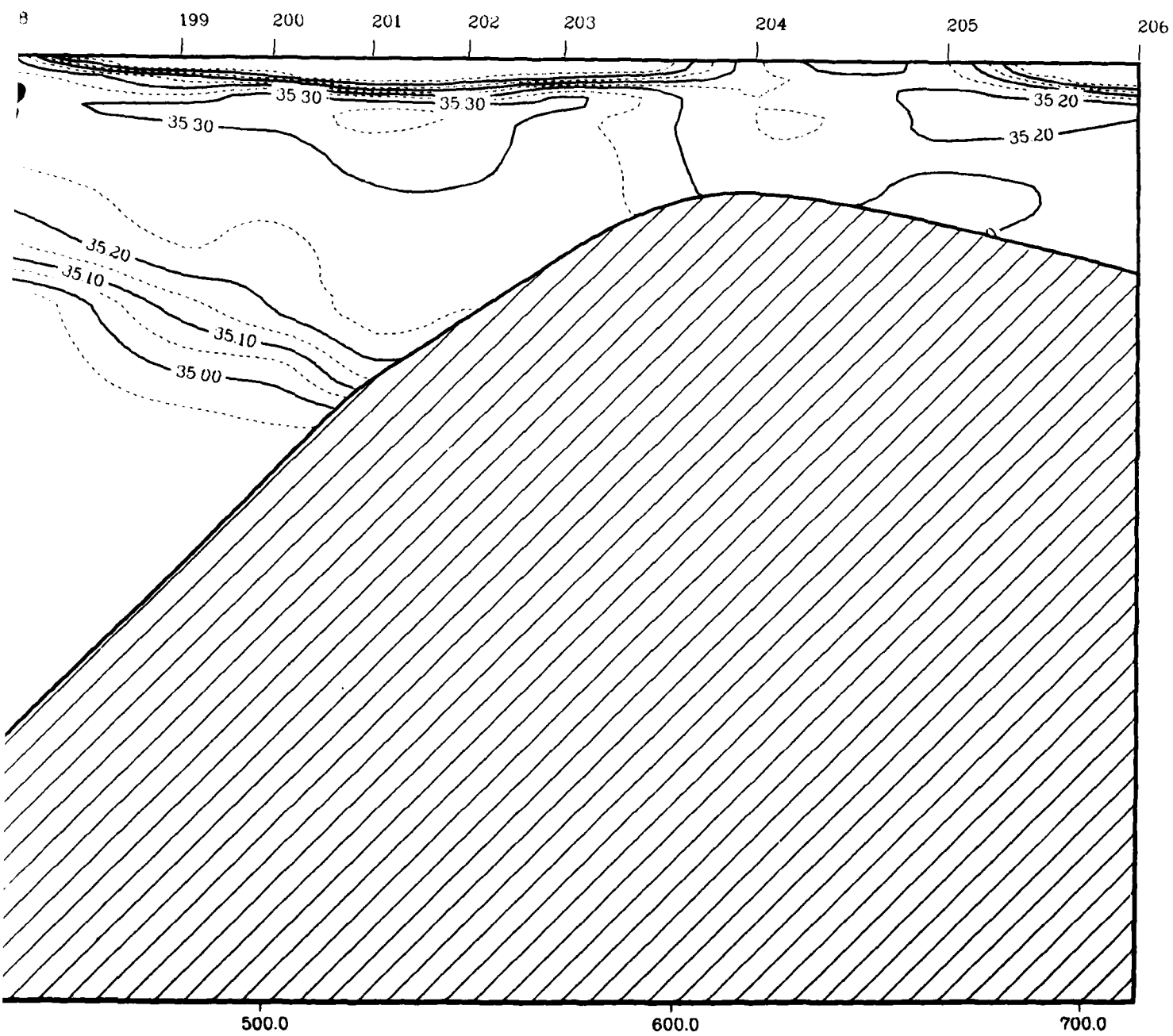


Figure 84. July 1935 (data set #5) salinity section.

SOGNEFJORD SECTION
FILE = ICES8:1935T5.DAT:1
SALINITY





ICES\$:1935U6.DAT

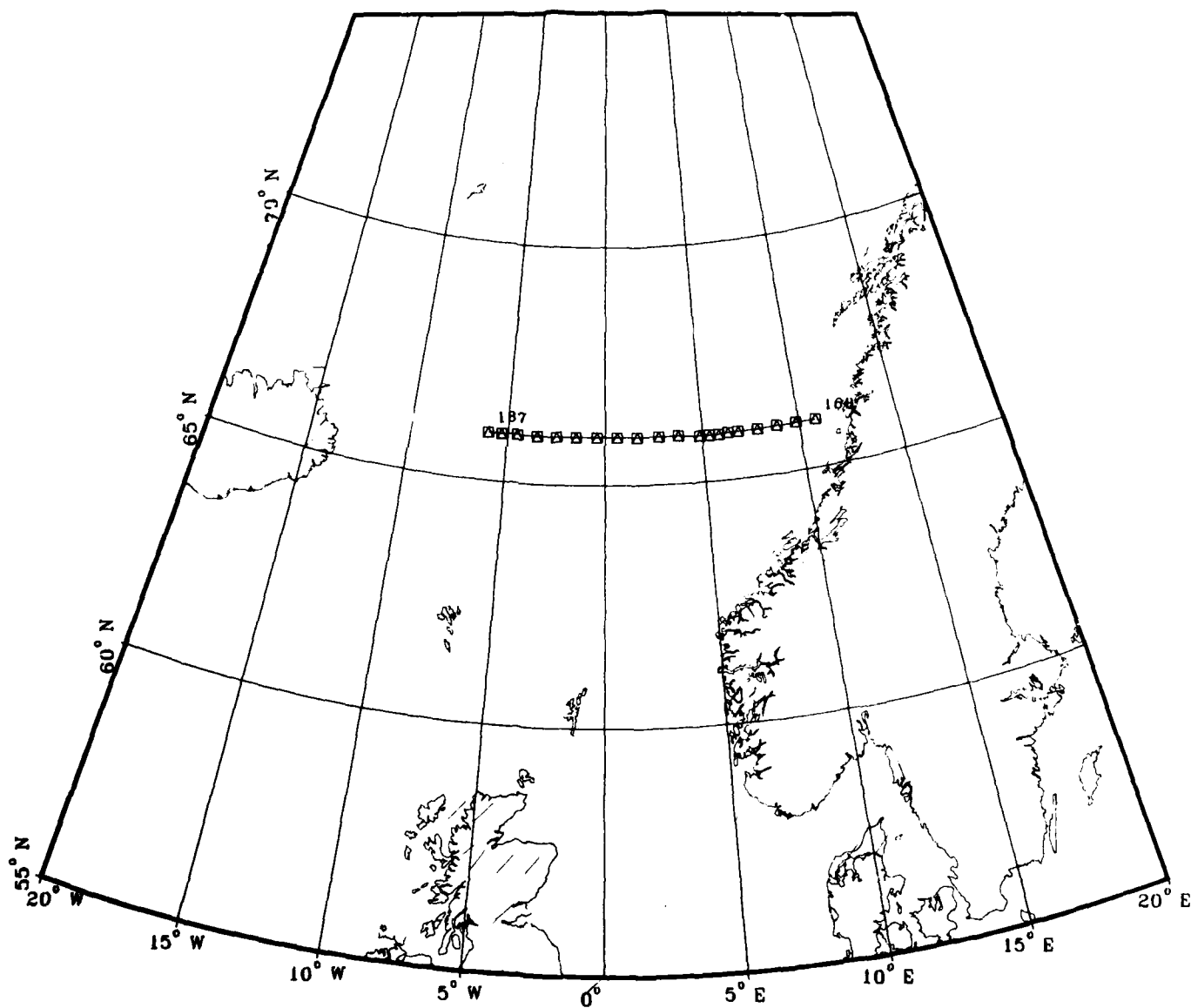


Figure 85. July 1935 (data set #6) station positions.

SOGNEFJORD SECTION
FILE = ICES\$1935U6.DAT
T/S PLOT

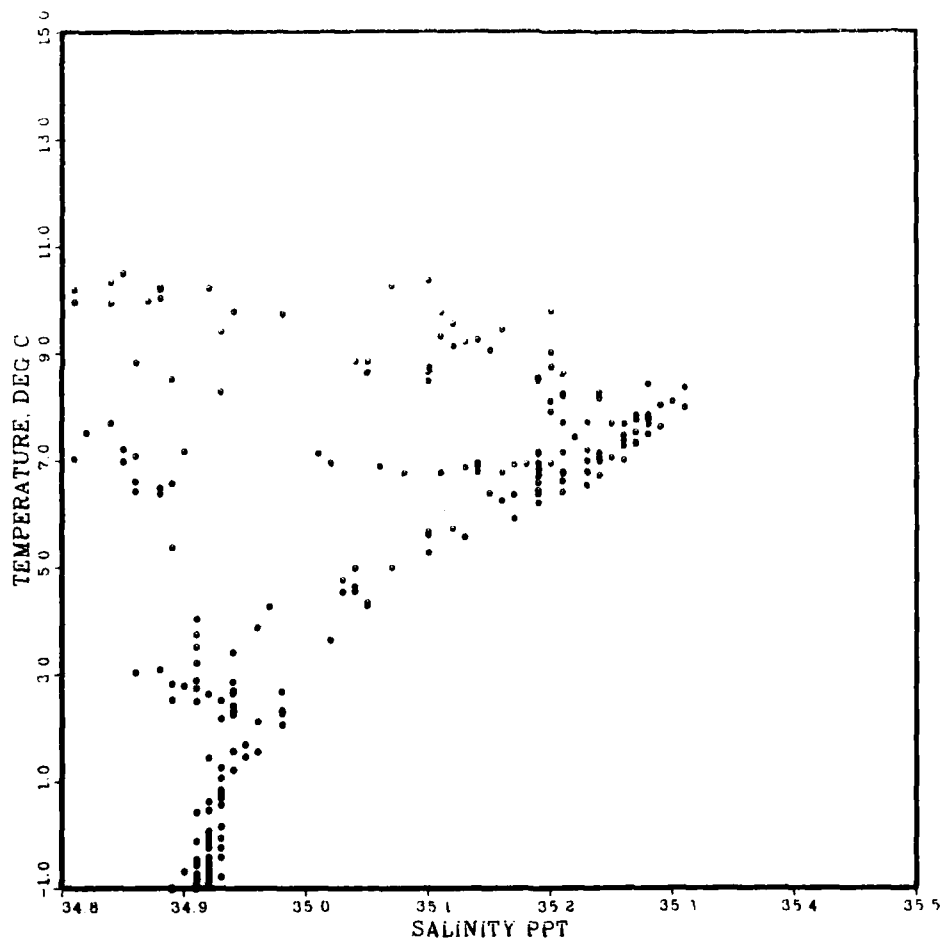


Figure 86. July 1935 (data set #6) temperature/salinity diagram.

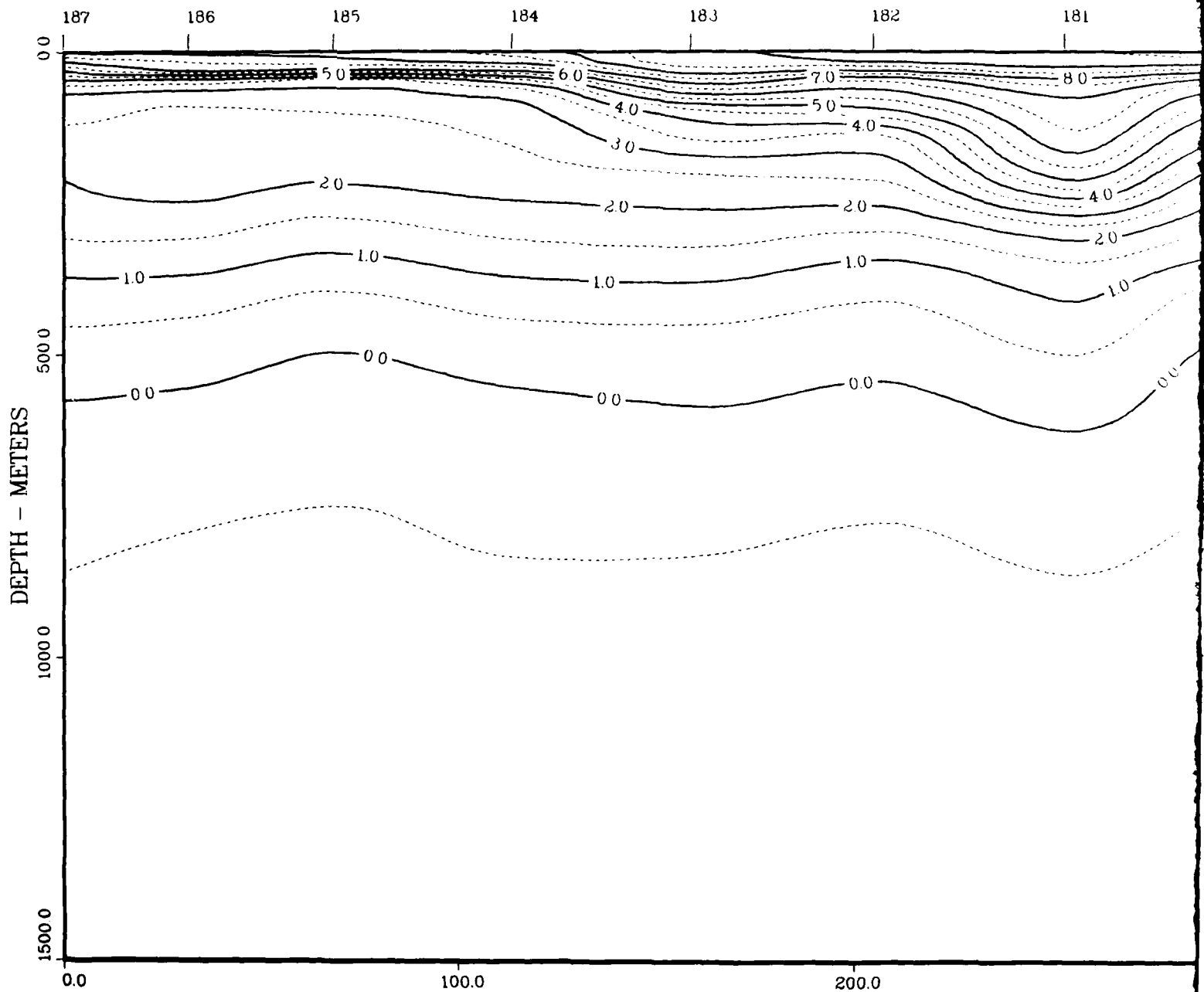
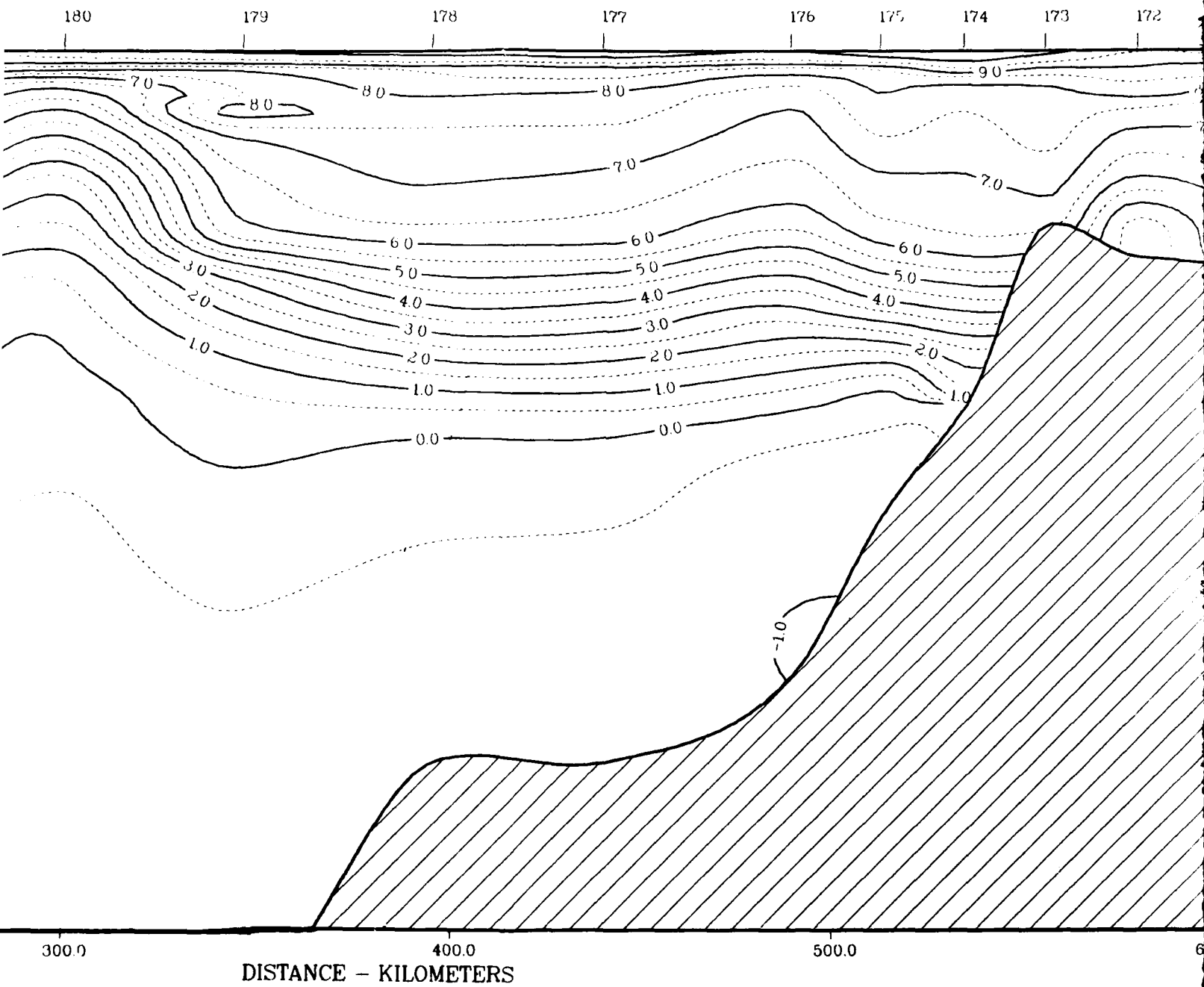
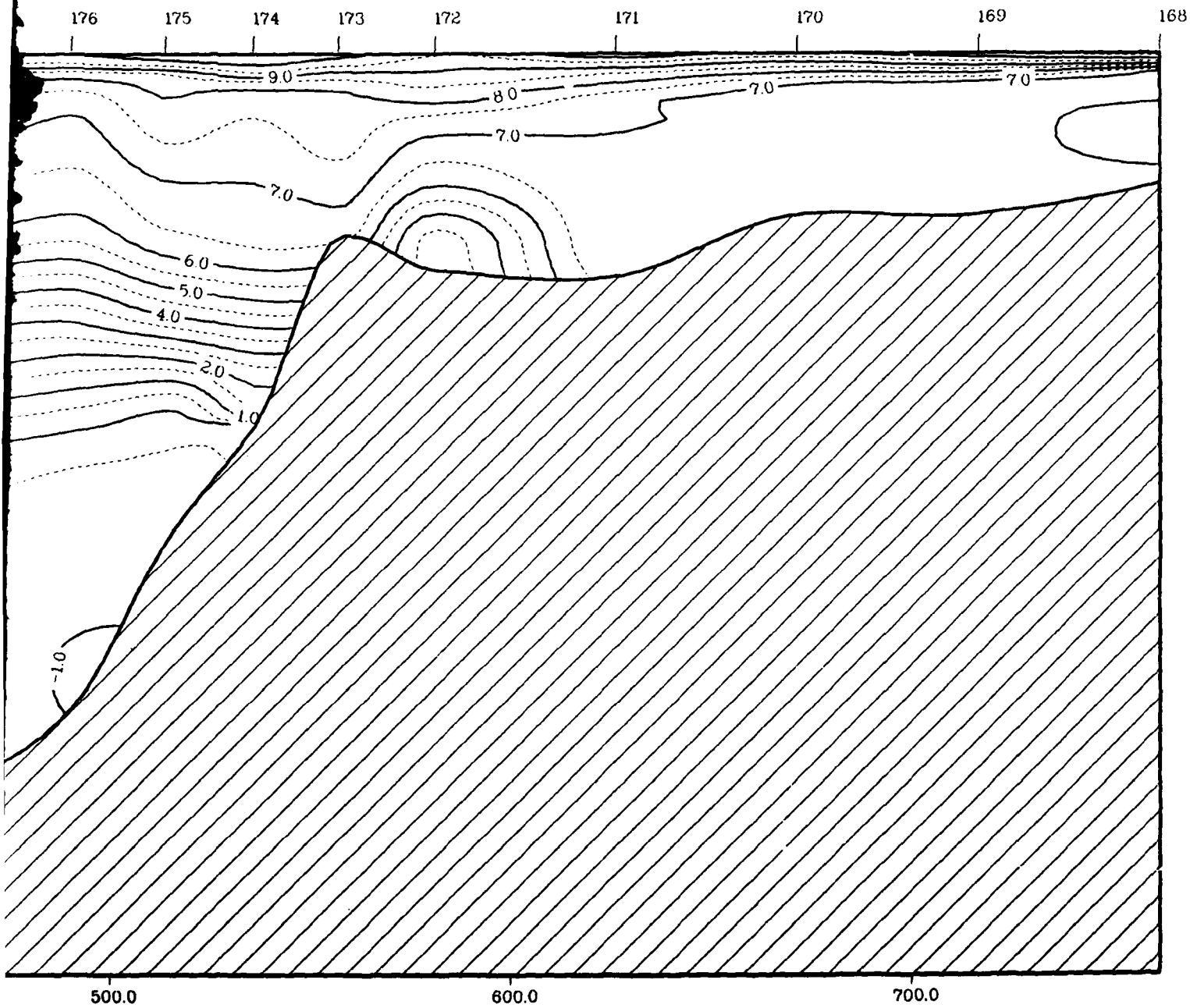


Figure 87. July 1935 (data set #6) temperature section.

SOGNEFJORD SECTION
FILE = ICES\$1935U6 DAT 1
TEMPERATURE





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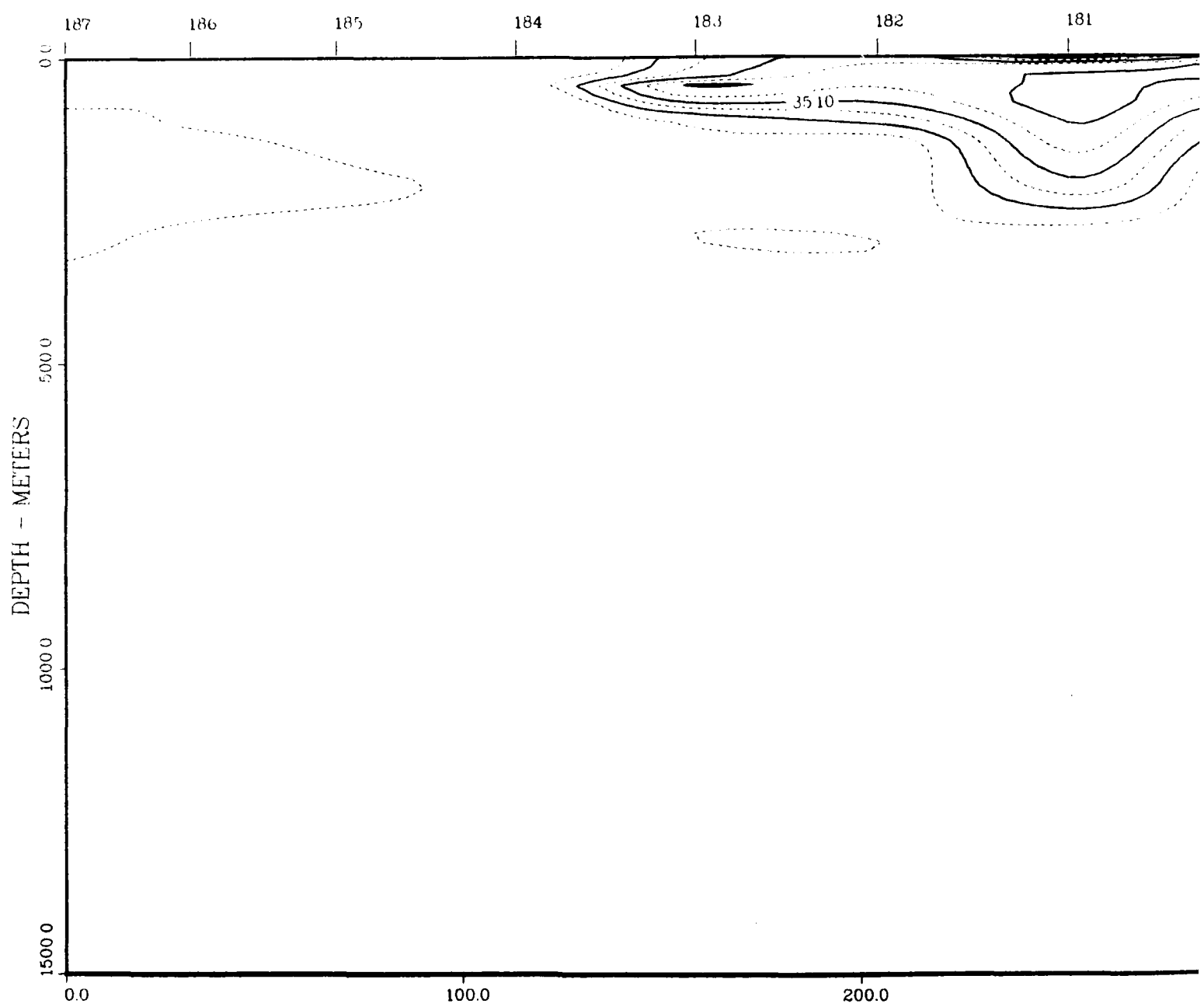
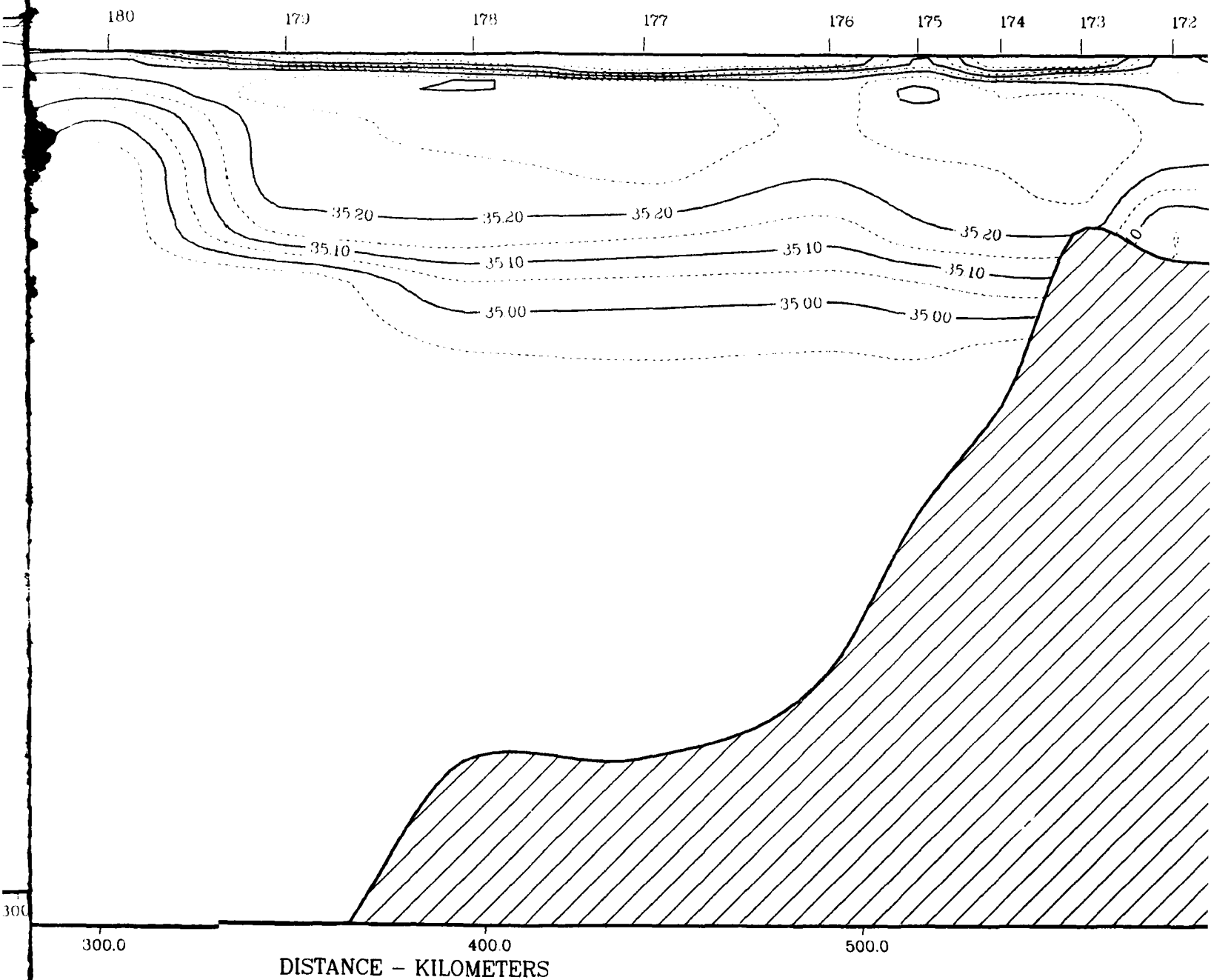
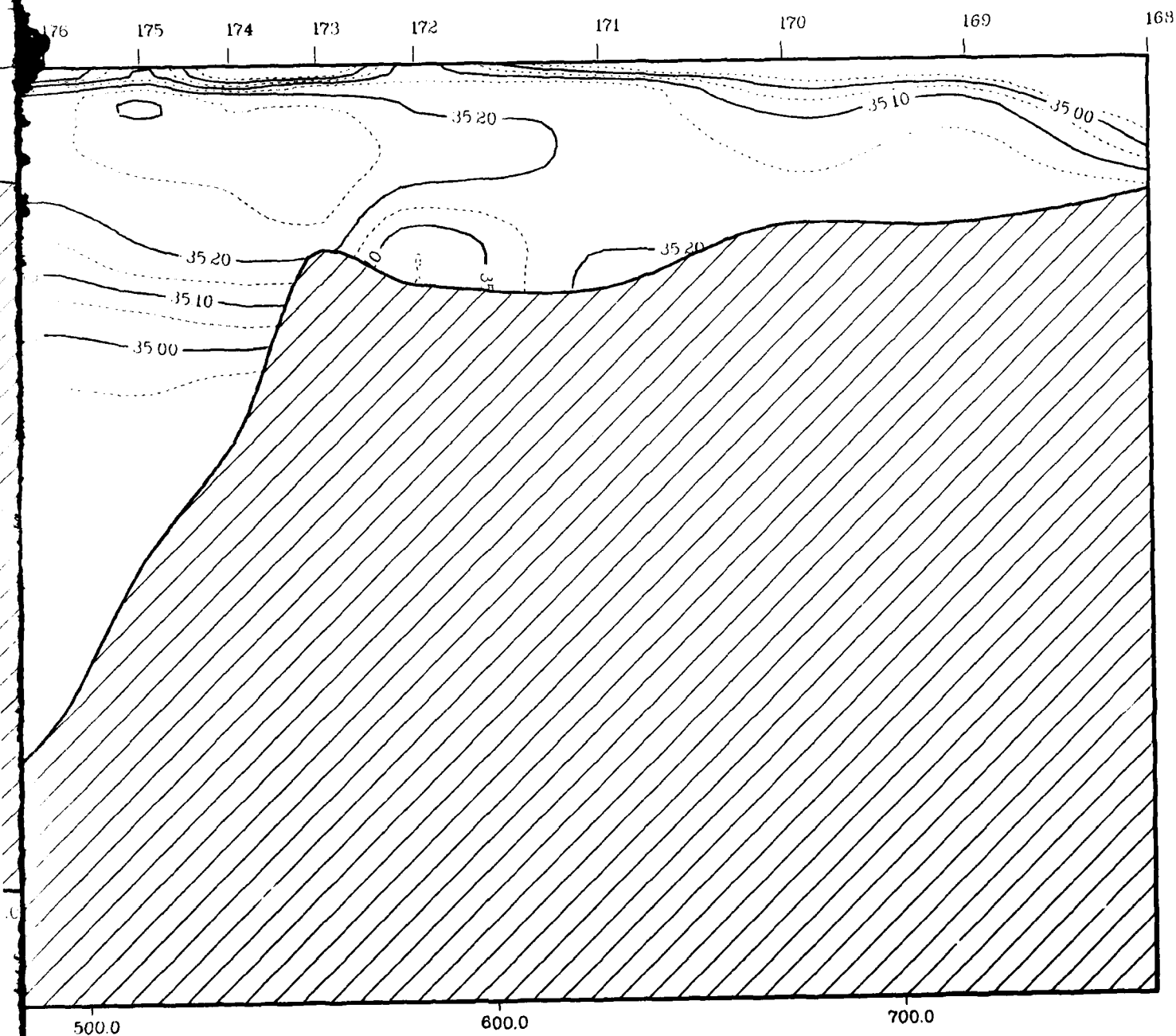


Figure 88. July 1935 (data set #6) salinity section.

SOGNEFJORD SECTION
FILE = ICES\$19.35U6.DAT-1
SALINITY





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ICES\$:1935V7.DAT

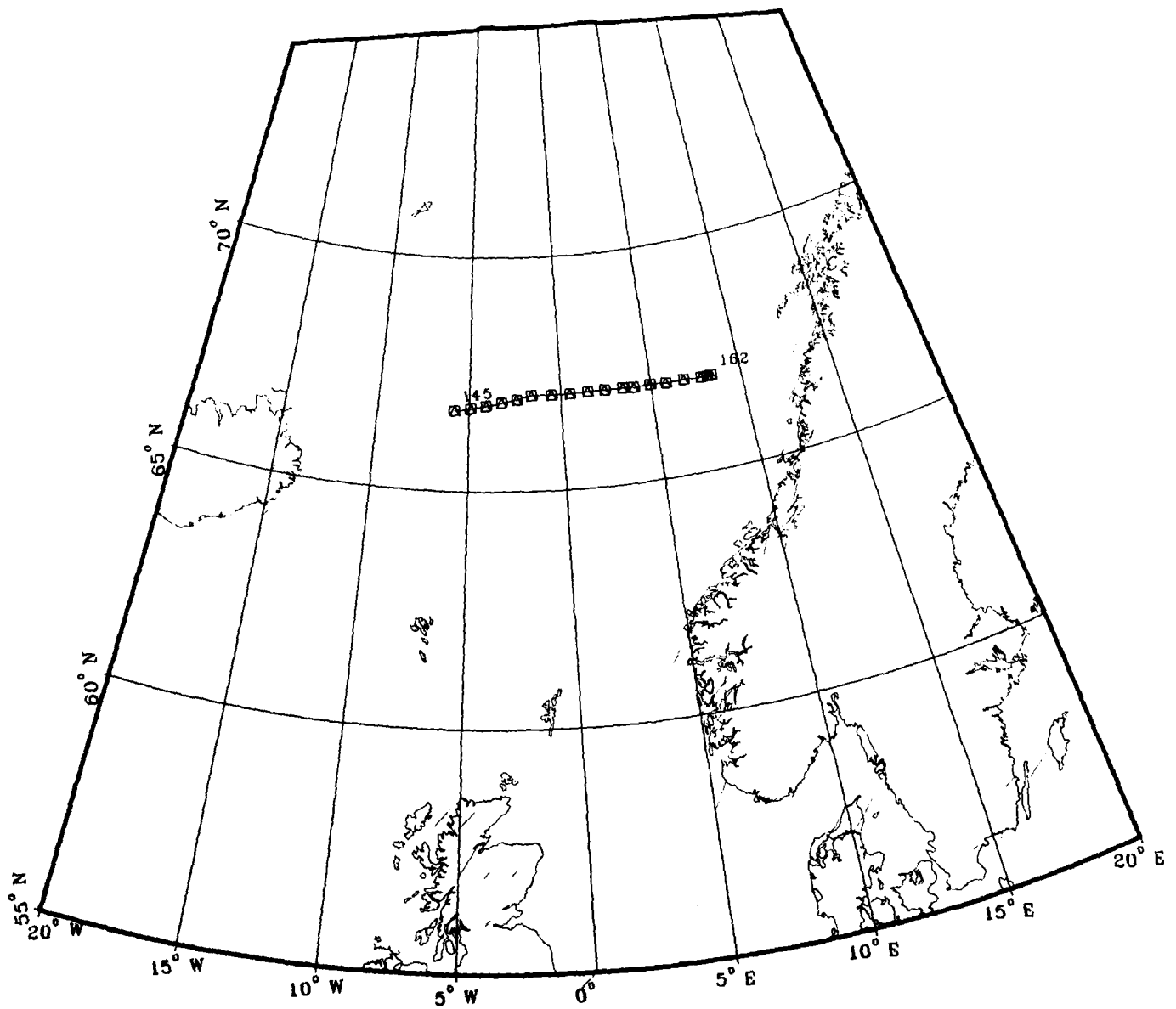


Figure 89. June 1935 (data set #7) station positions.

SOGNEFJORD SECTION
FILE = ICES\$1935V7.DAT
T/S PLOT

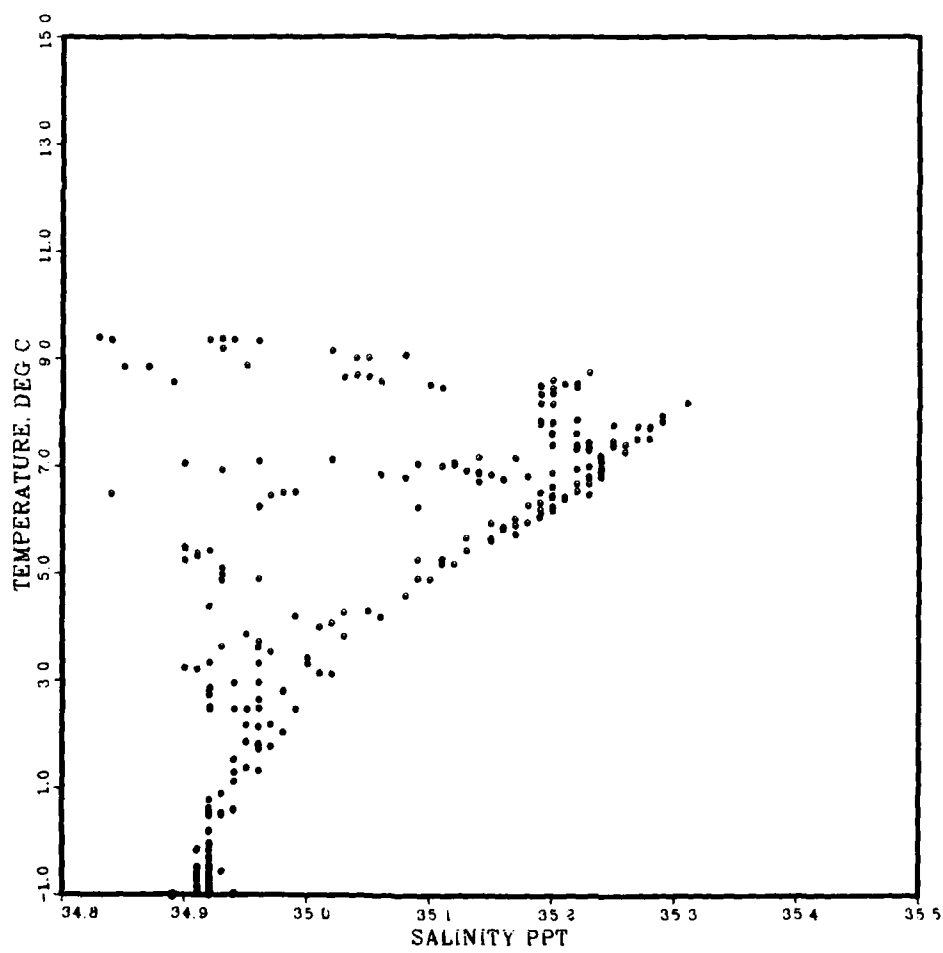


Figure 90. June 1935 (data set #7) temperature/salinity diagram.

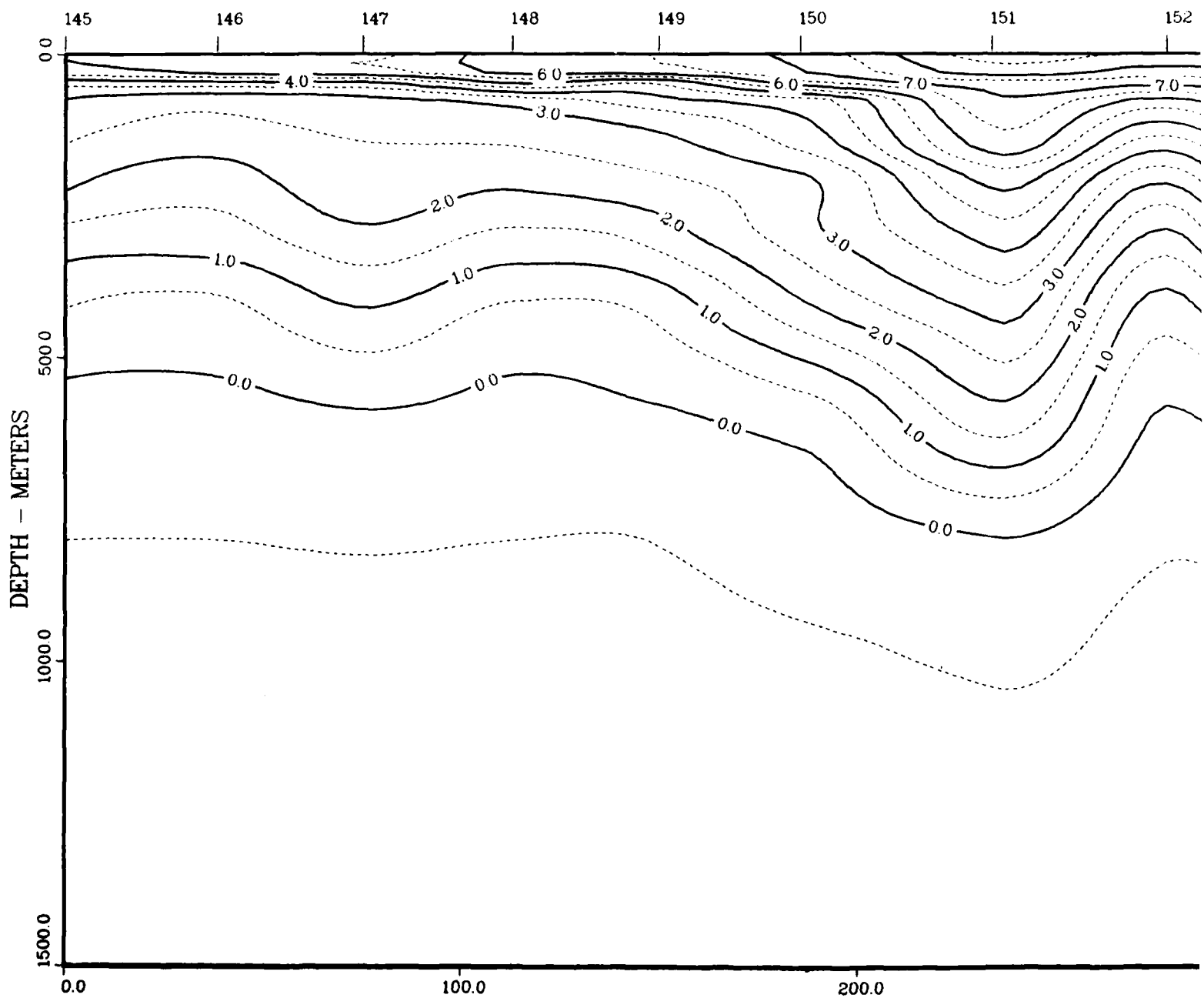
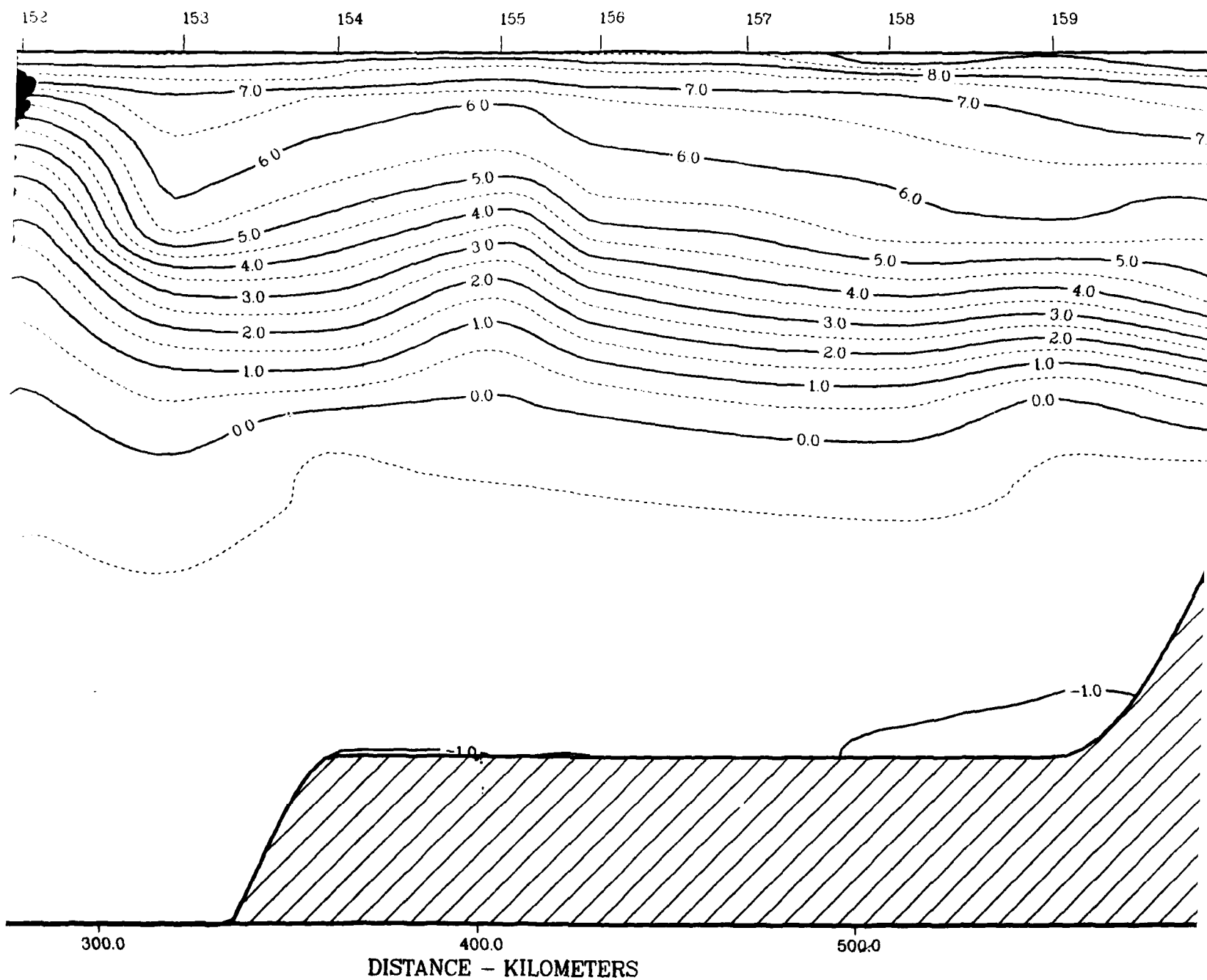
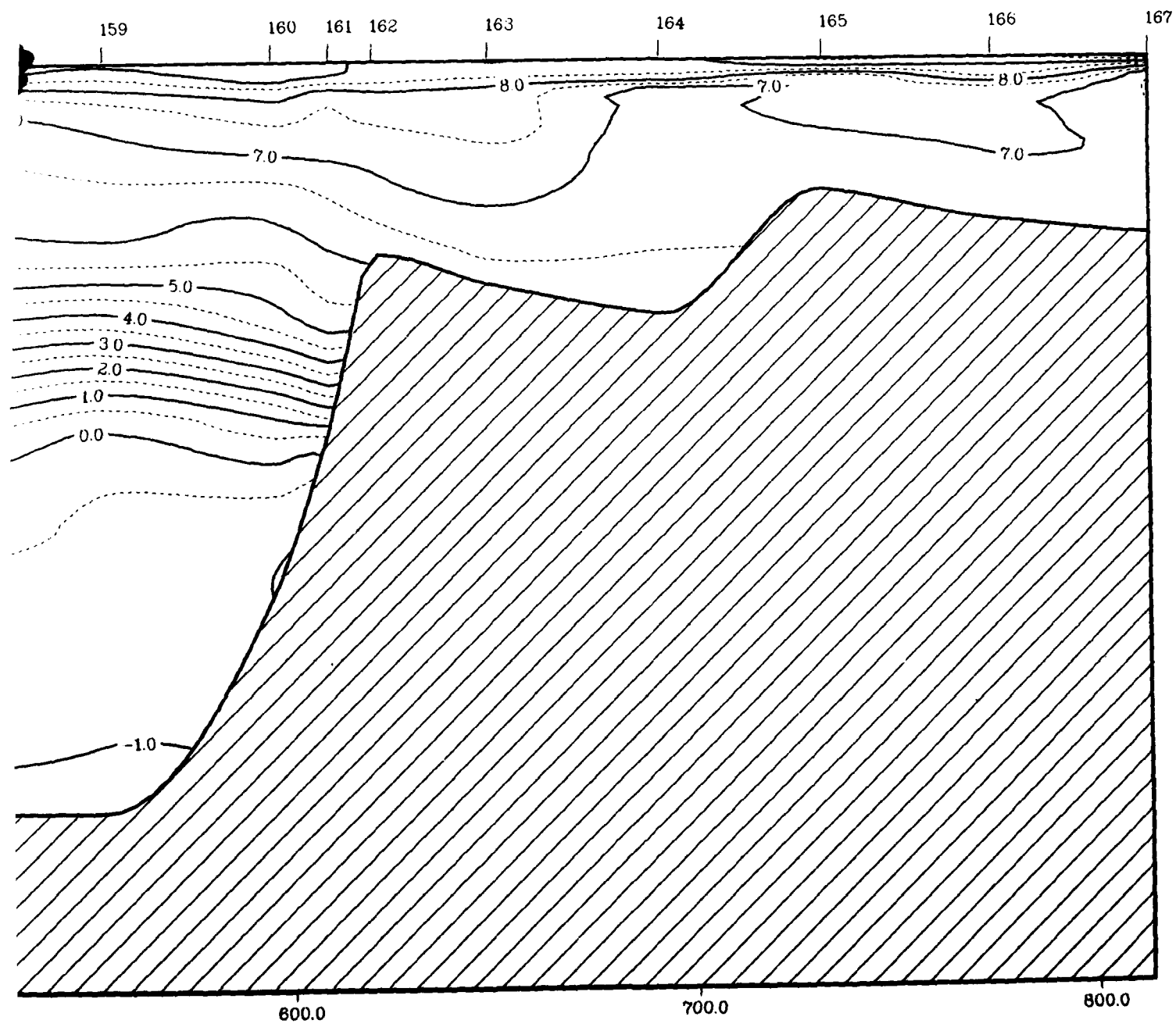


Figure 91. June 1935 (data set #7) temperature section.

SOGNEFJORD SECTION
FILE = ICES\$1935V7.DAT:1
TEMPERATURE





3

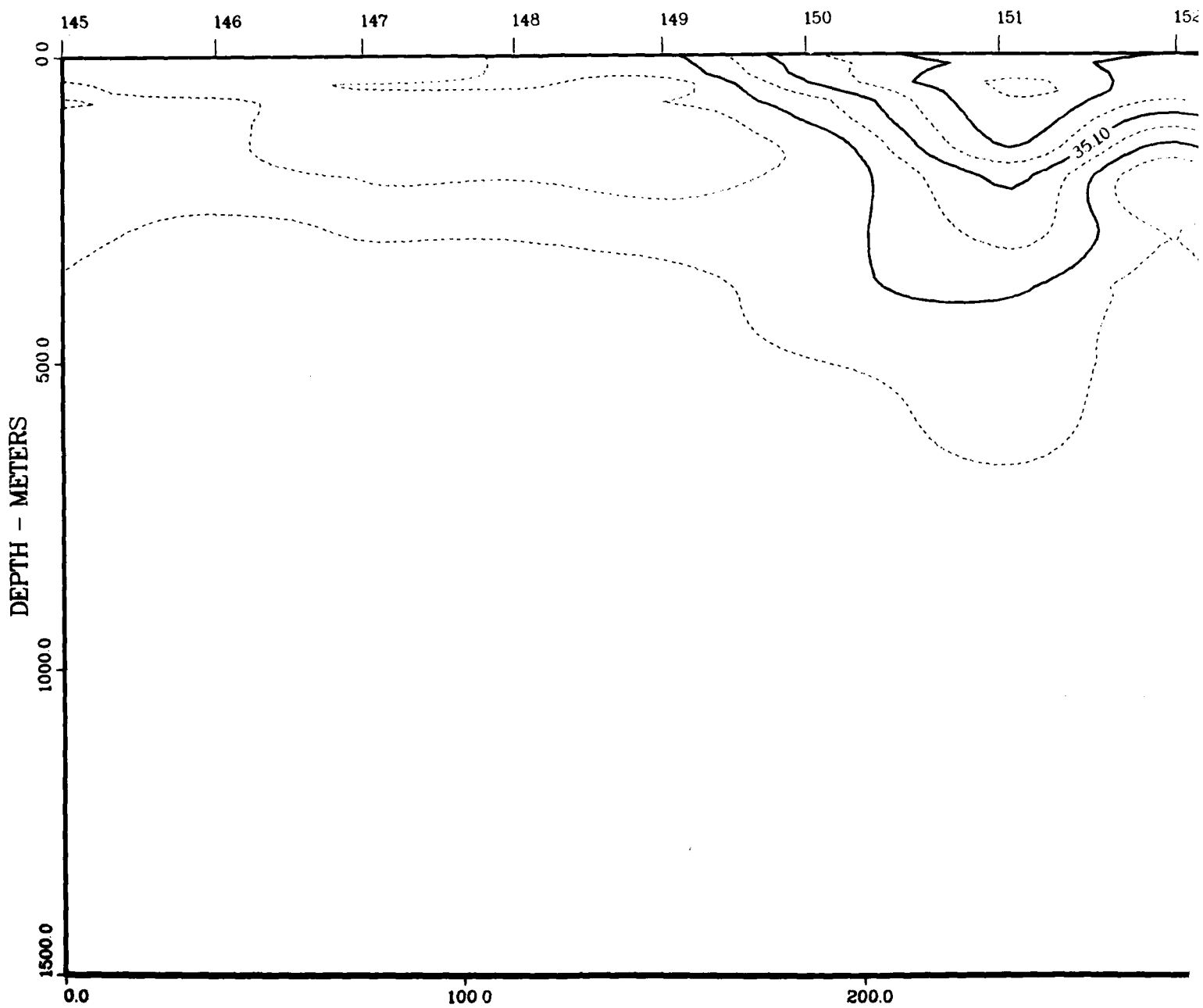
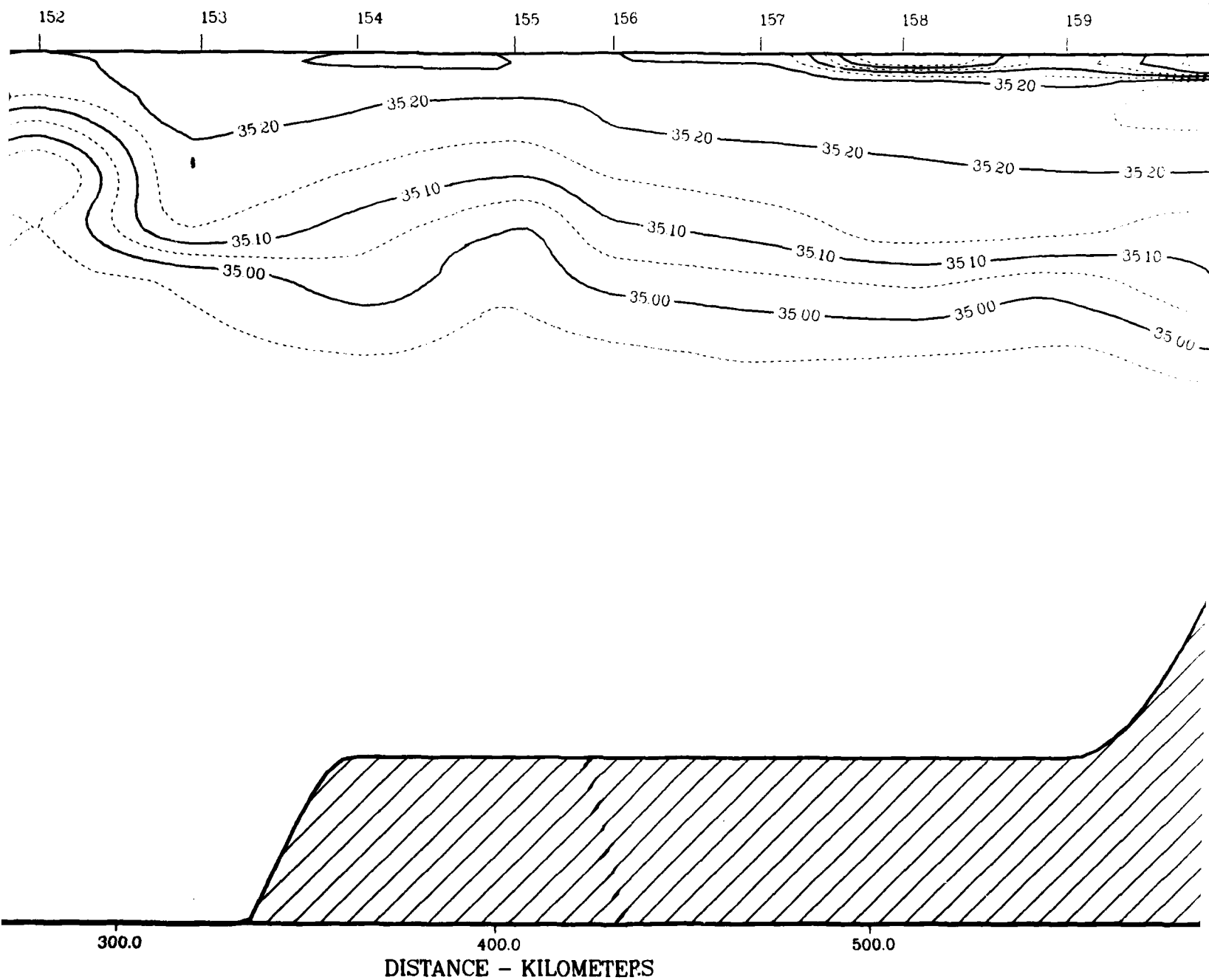


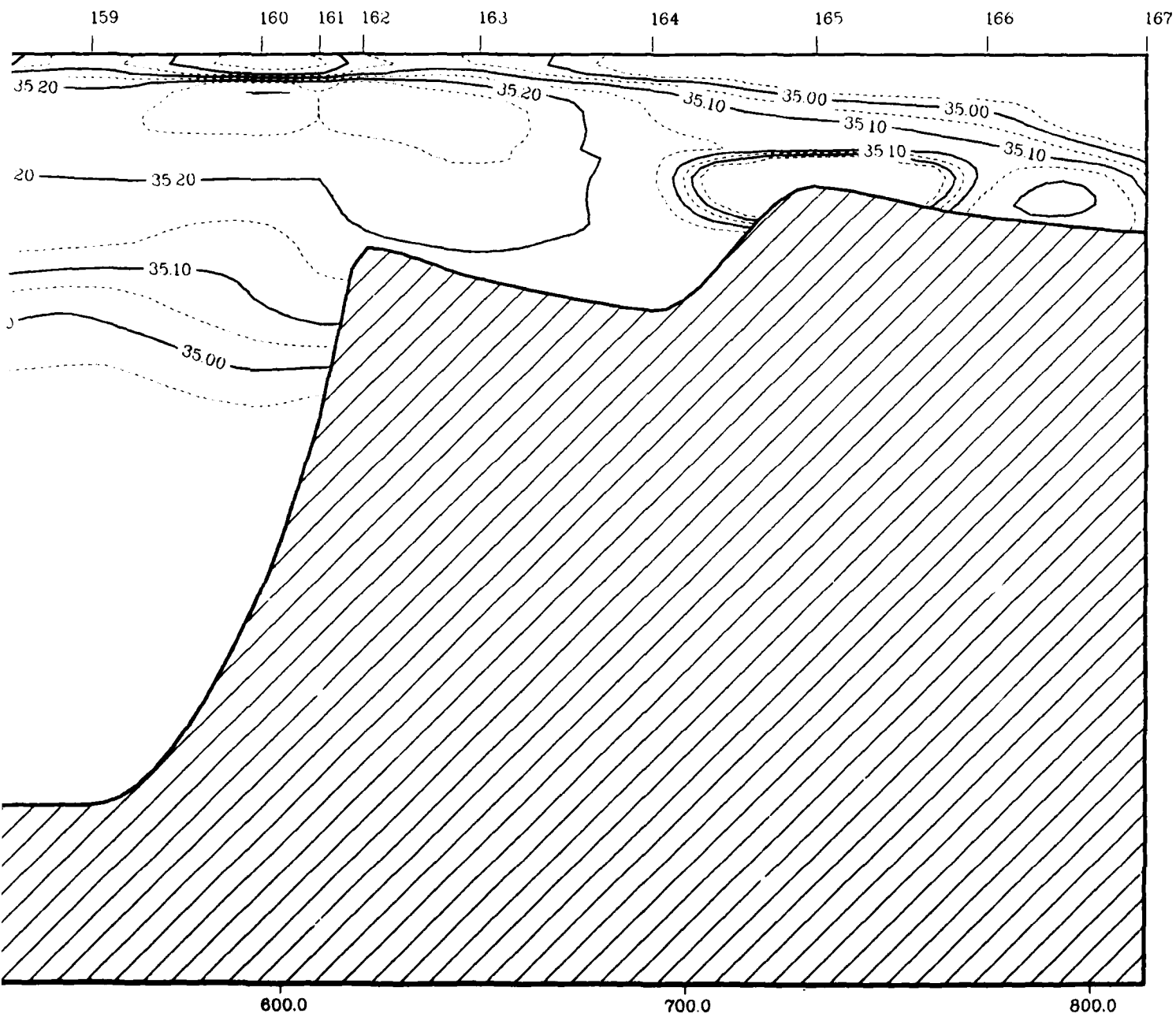
Figure 92. June 1935 (data set 07) salinity section.

SOGNEFJORD SECTION

FILE = ICES\$1935V7.DAT.1

SALINITY





ICES\$:1935X9.DAT

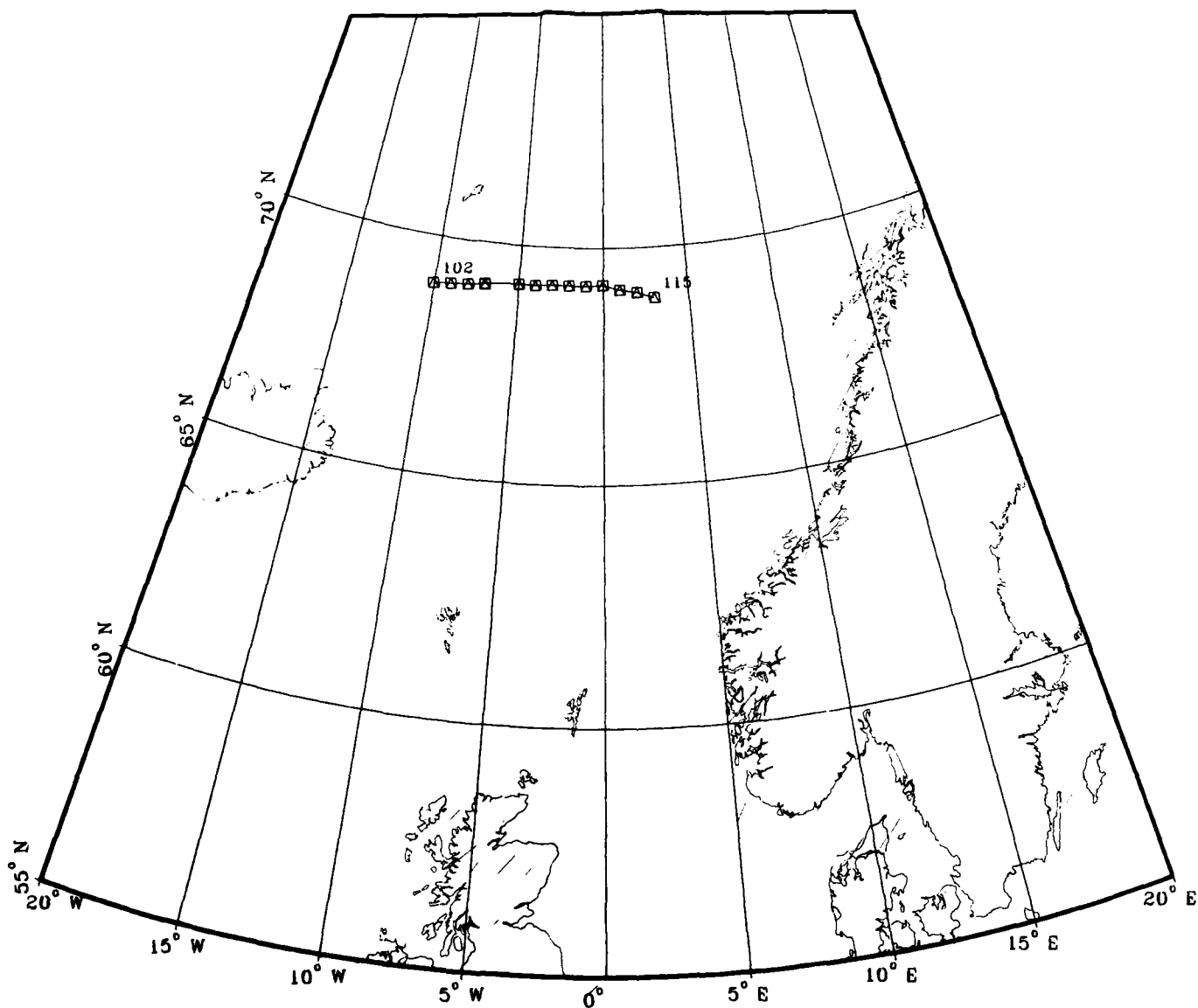


Figure 93. June 1935 (data set #9) station positions.

SOGNEFJORD SECTION
FILE = ICES\$1935X9.DAT
T/S PLOT

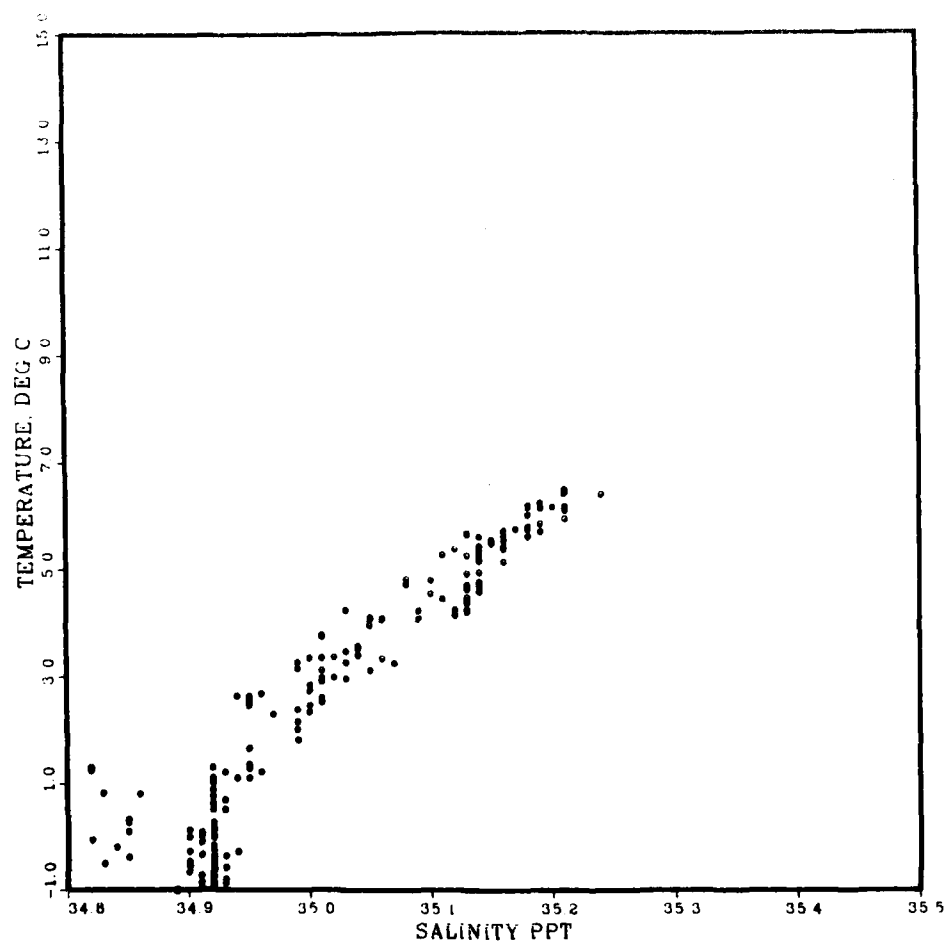


Figure 94. June 1935 (data set #9) temperature/salinity diagram.

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FILE = ICES\$1935X
TEMPERATUR

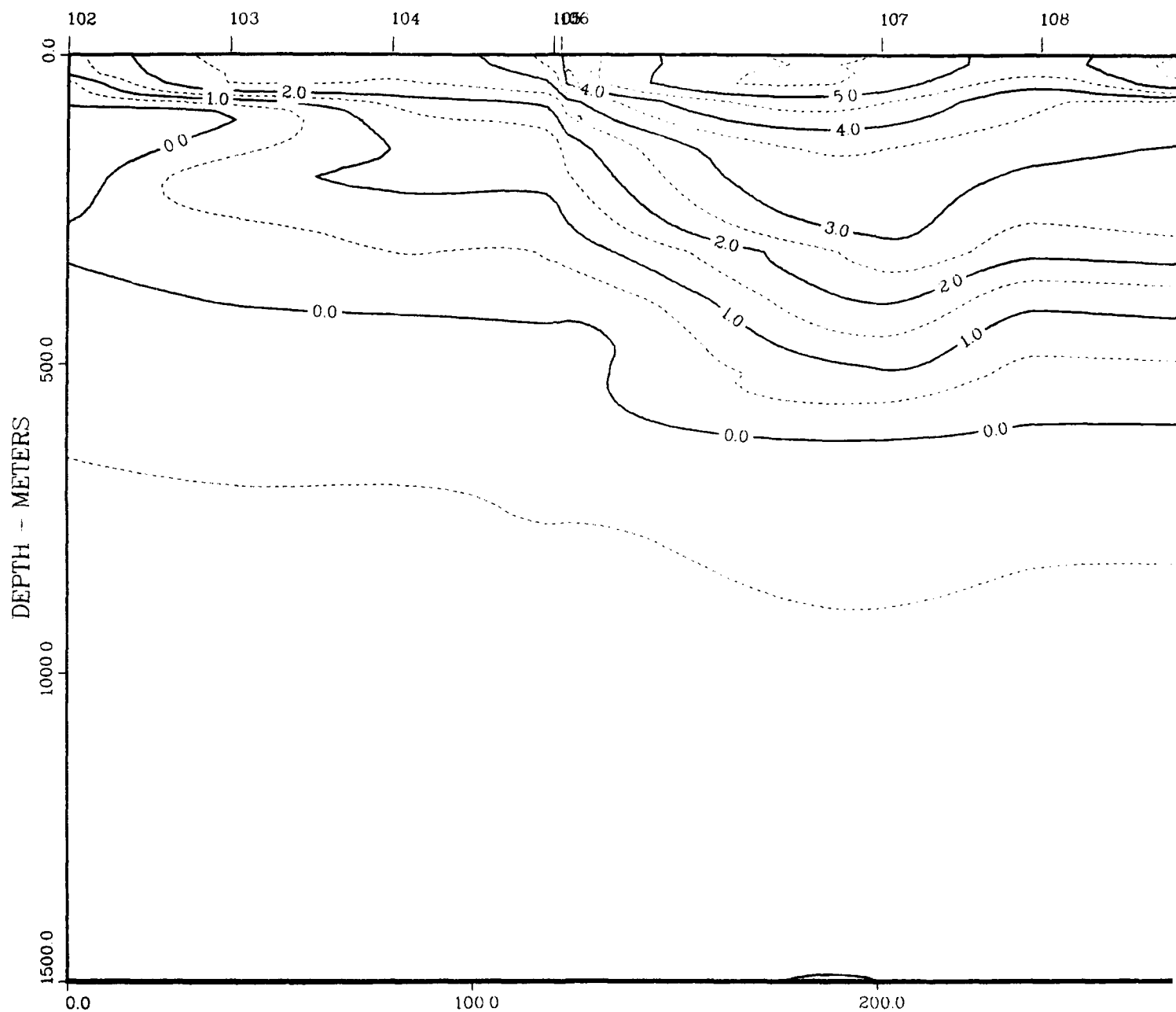
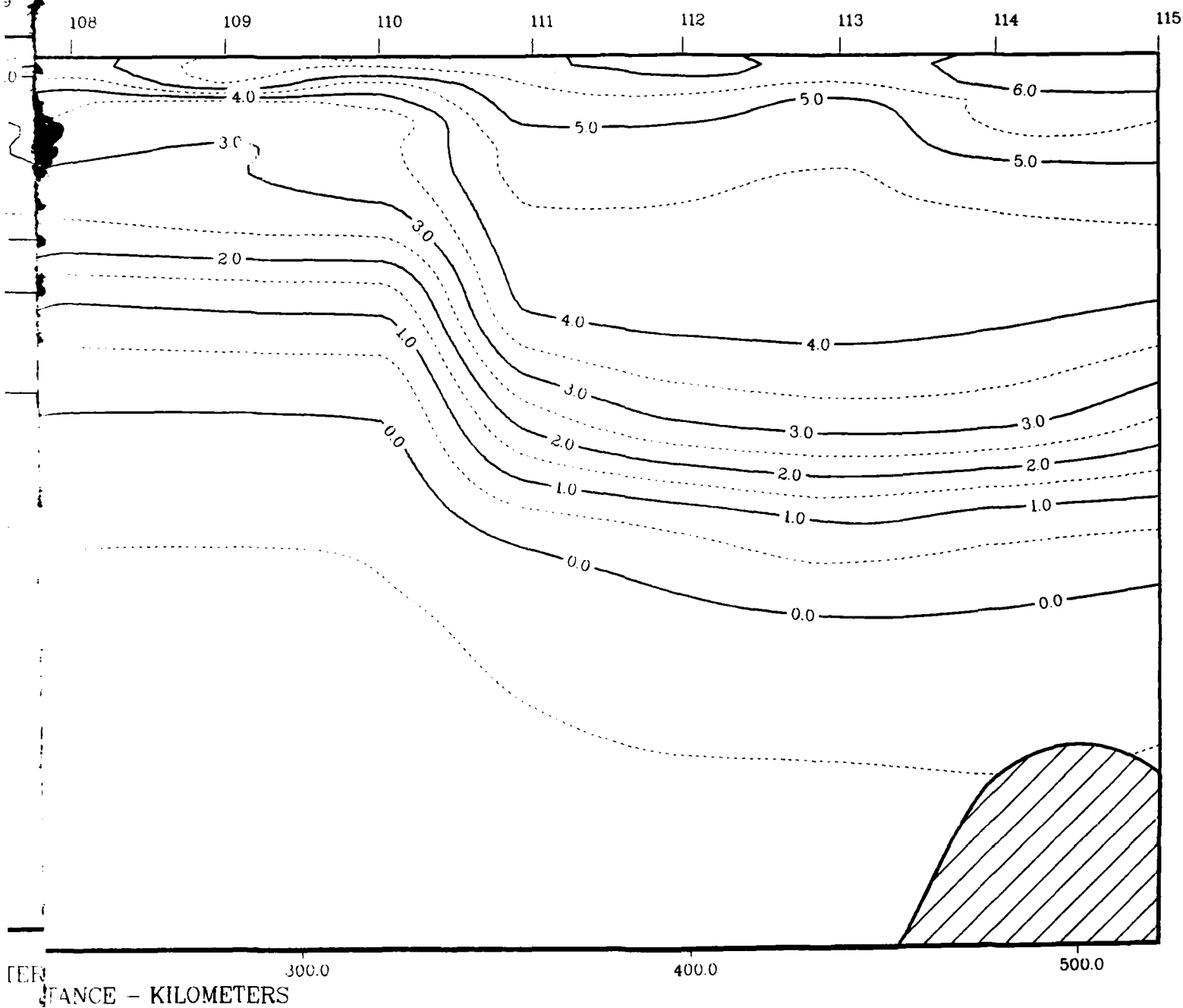


Figure 95. June 1935 (data set #9) temperature section.

OGNEFJORD SECTION
FILE = ICES\$1935X9 DAT1
TEMPERATURE



TEMPERATURE - KILOMETERS

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SOGNEFJORD S
FILE = ICES 1935
SALINITY

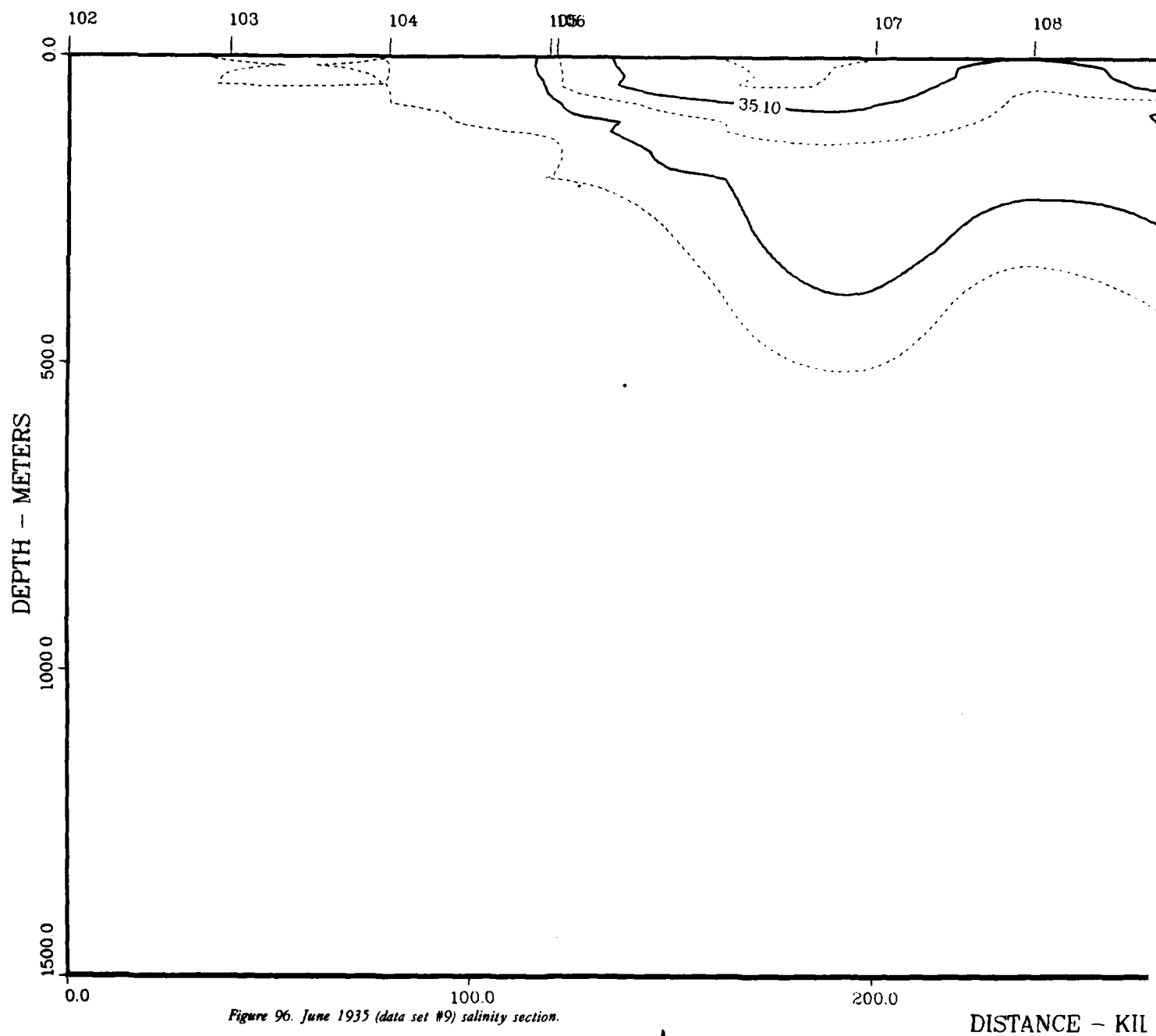
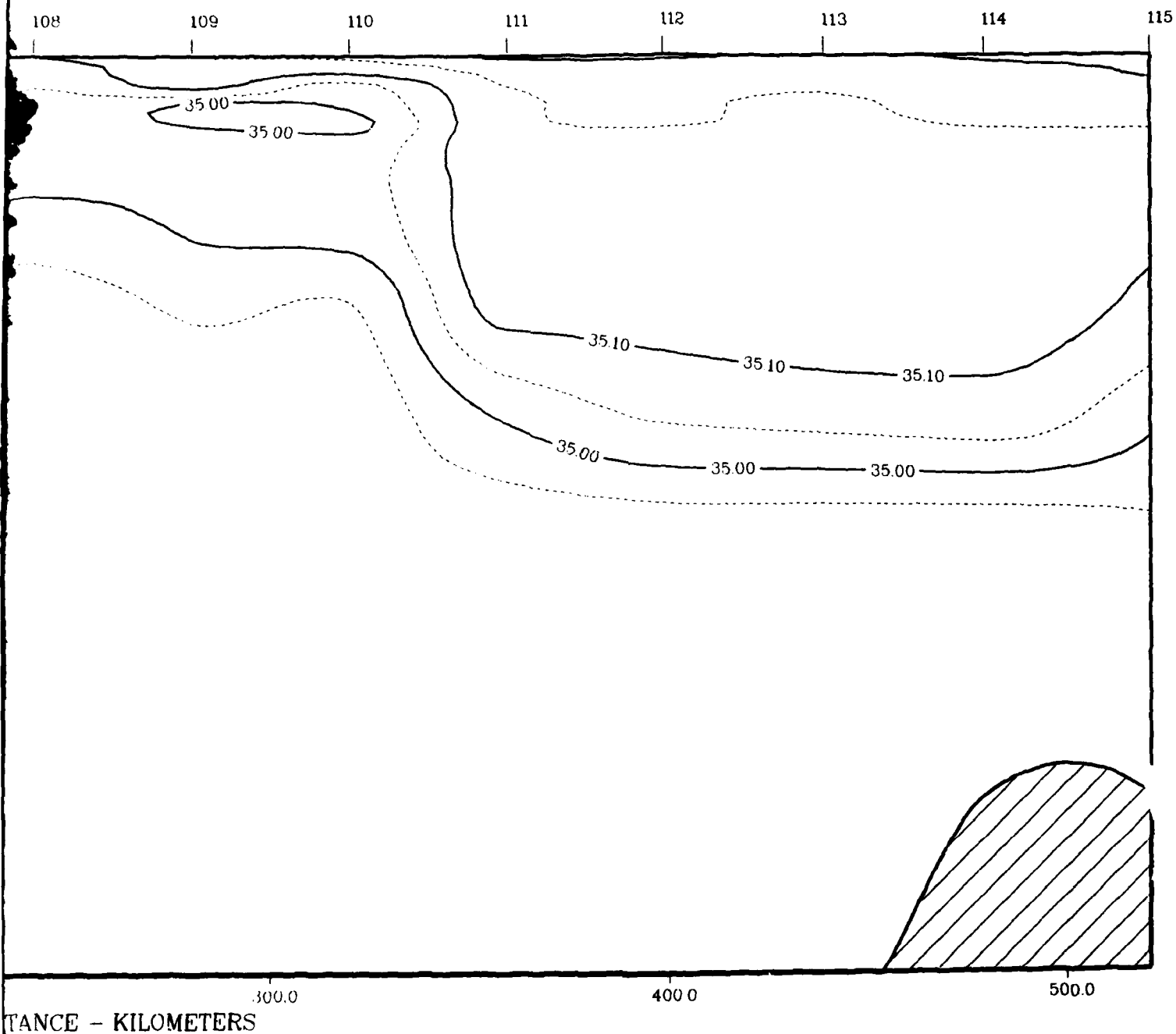


Figure 96. June 1935 (data set #9) salinity section.

GNEFJORD SECTION
FILE = ICES\$.1935X9 DAT:1
SALINITY



TANCE - KILOMETERS

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ICES\$:1935P10.DAT

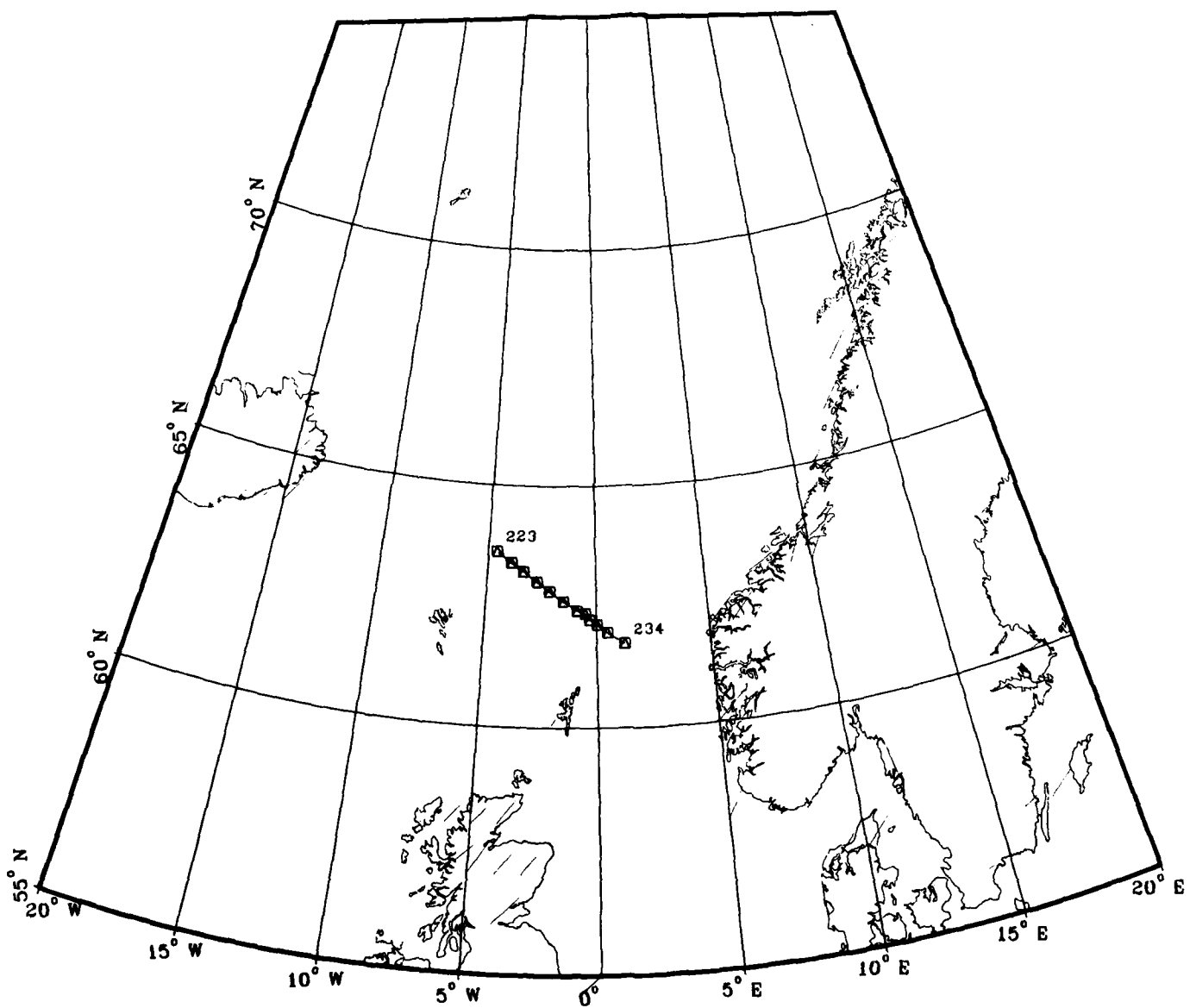


Figure 97. July 1935 (data set #10) station positions.

SOGNEFJORD SECTION
FILE = ICES\$1935P10.DAT
T/S PLOT

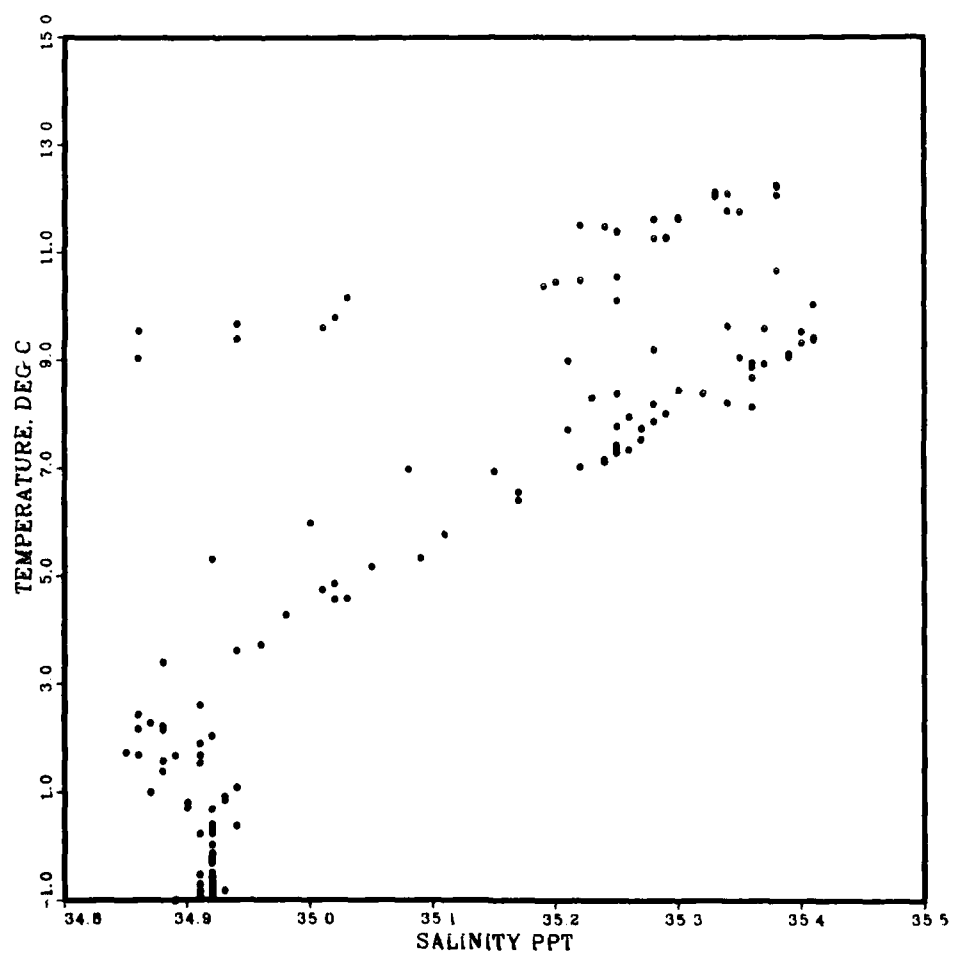


Figure 98. July 1935 (data set #10) temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$1935P10 DAT:1
 TEMPERATURE

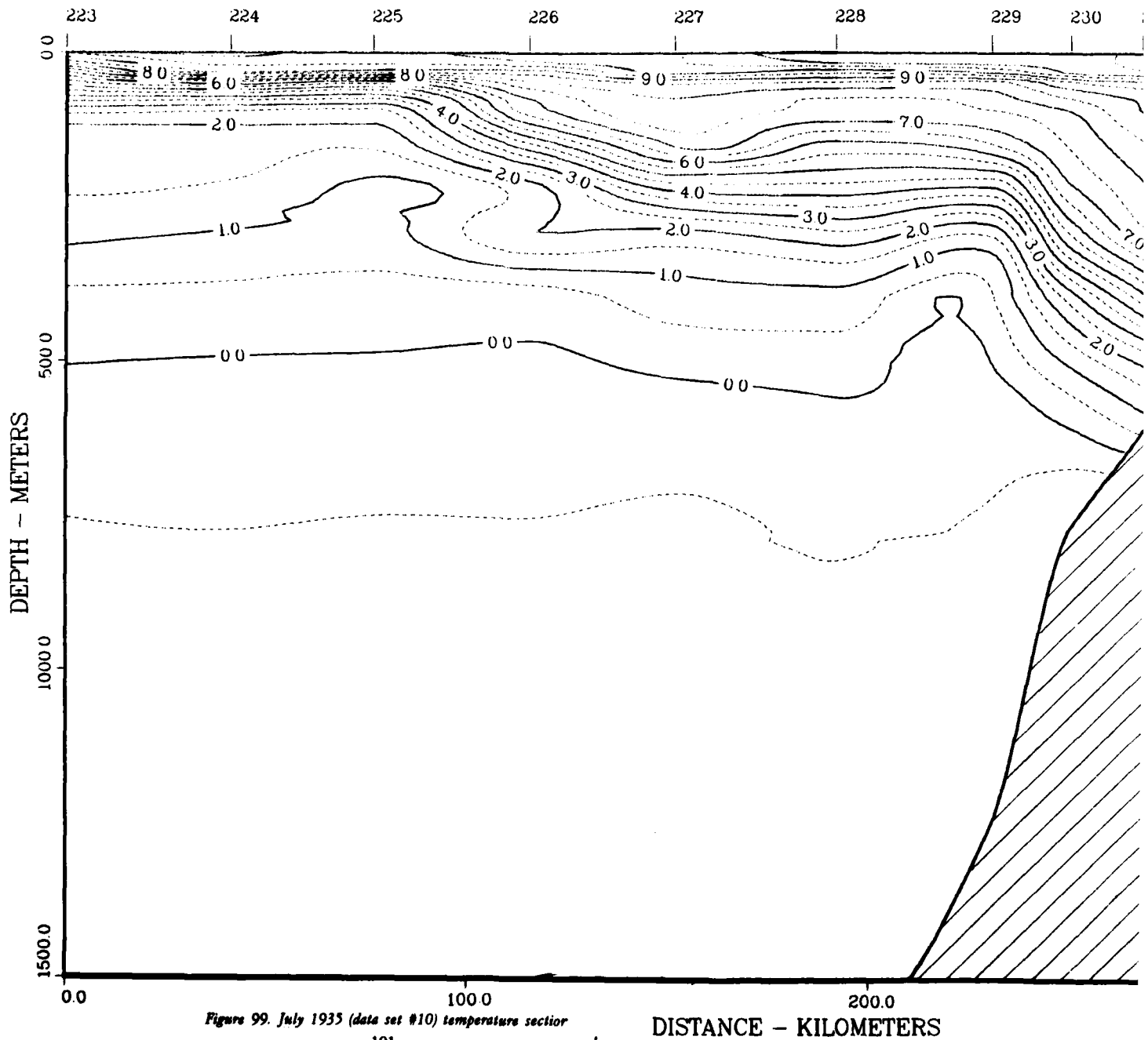
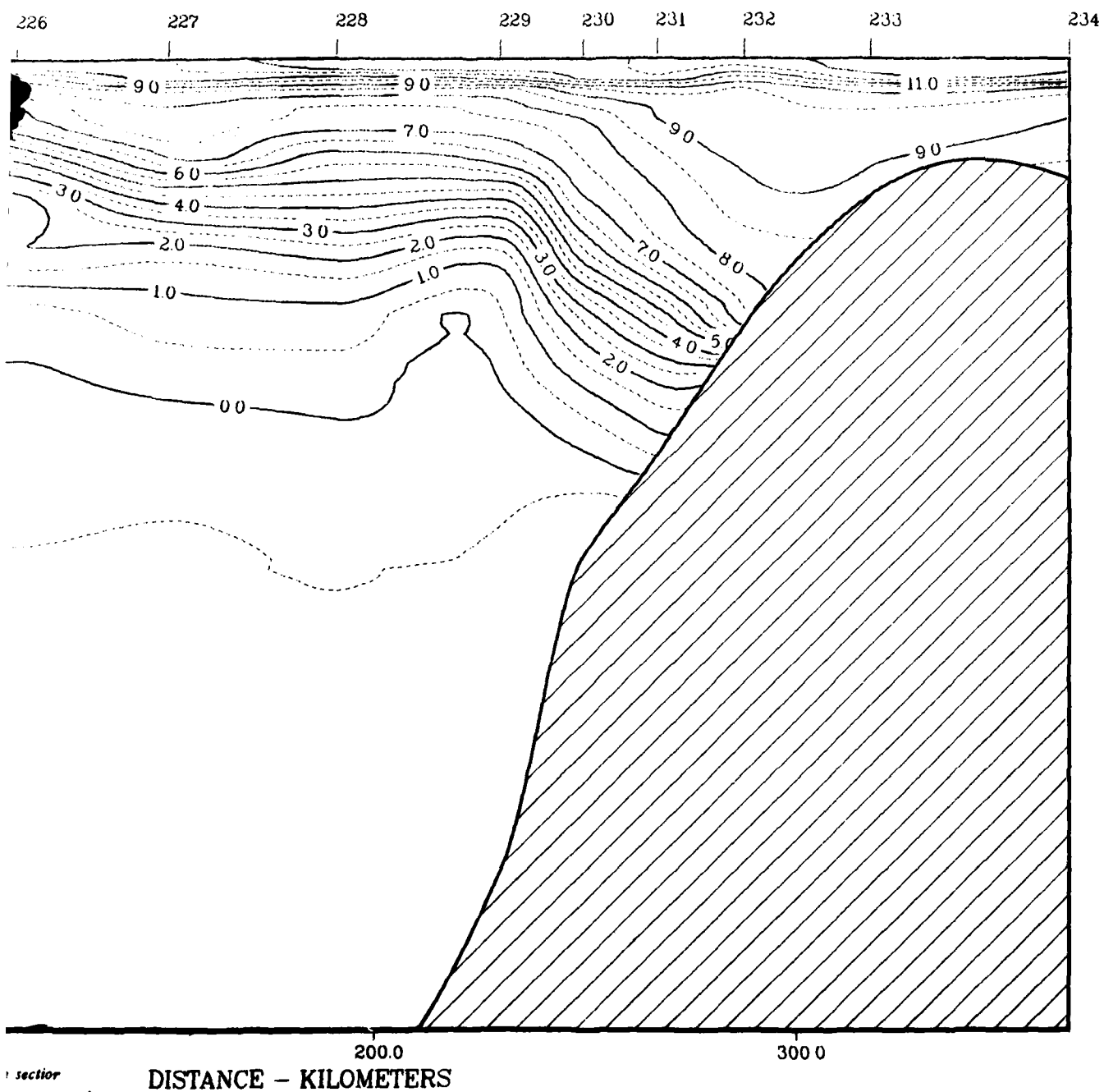


Figure 99. July 1935 (data set #10) temperature section
 101

DISTANCE - KILOMETERS

SOGNEFJORD SECTION
FILE = ICES\$1935P10.DAT.1
TEMPERATURE



section

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SOGNEFJORD SECTION
FILE = ICES\$1935P10.DAT,1
SALINITY

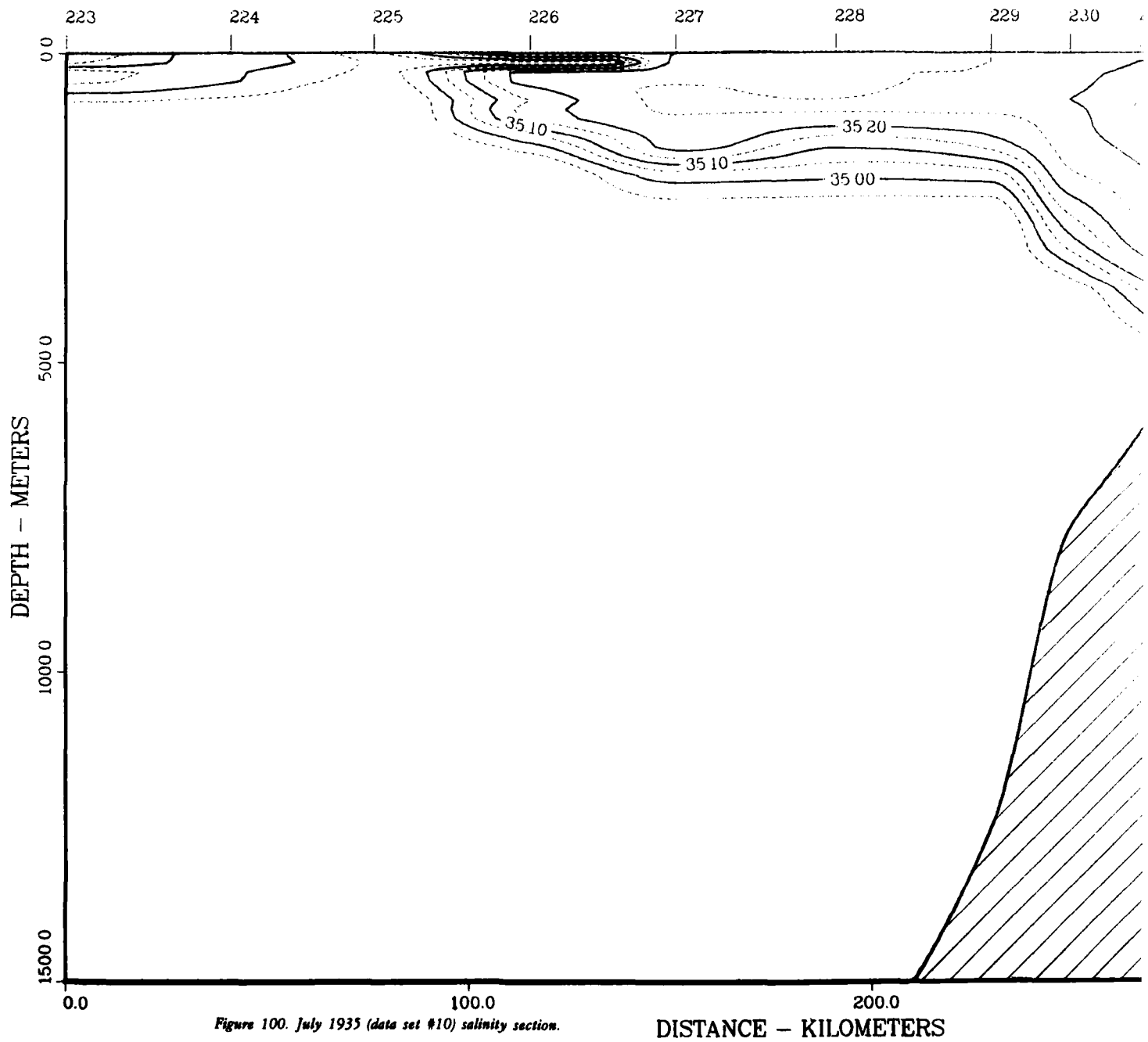
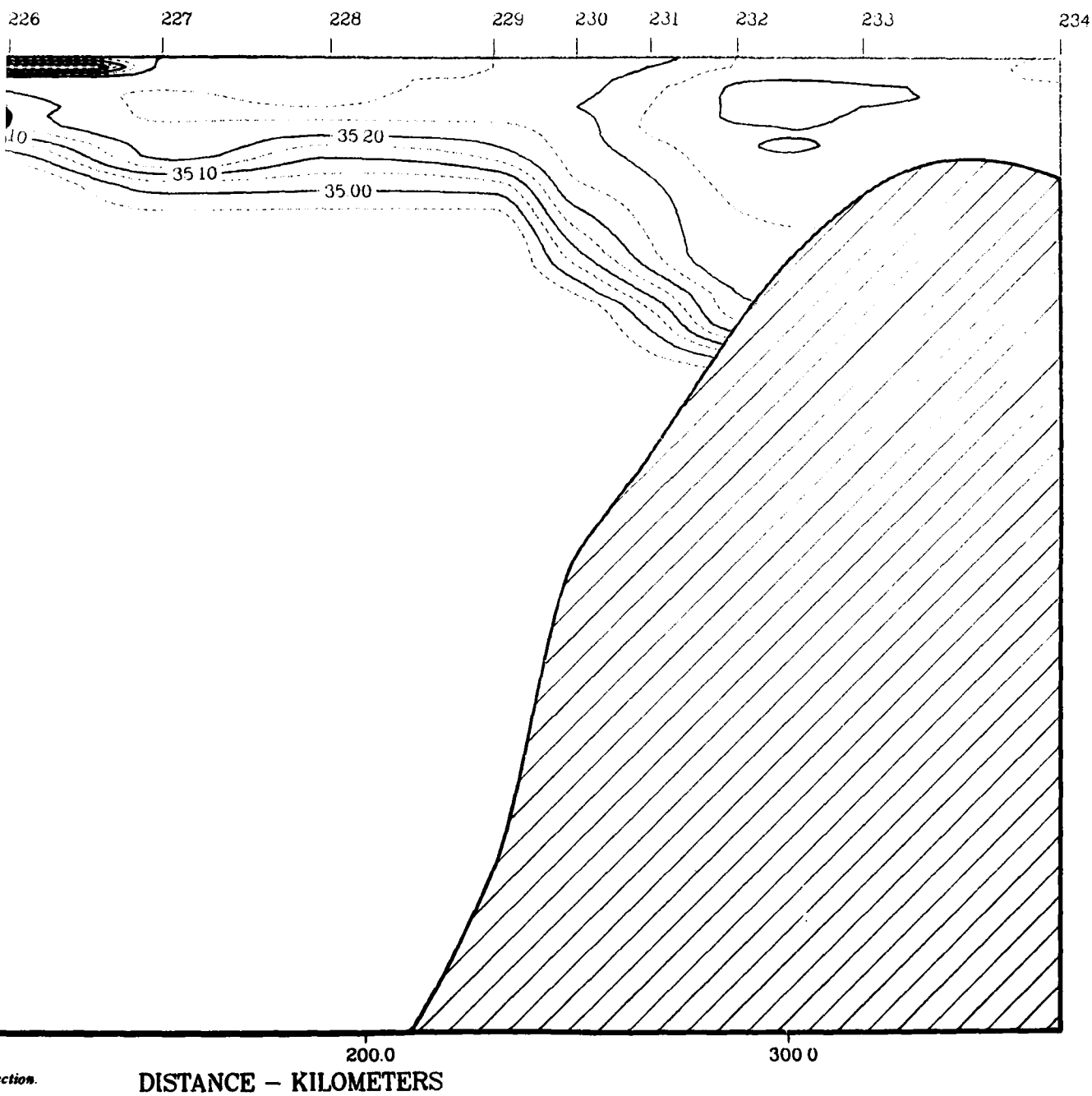


Figure 100. July 1935 (data set #10) salinity section.

SOGNEFJORD SECTION

FILE = ICES\$.1935P10.DAT.1
SALINITY



ICES\$.1936Y1.DAT

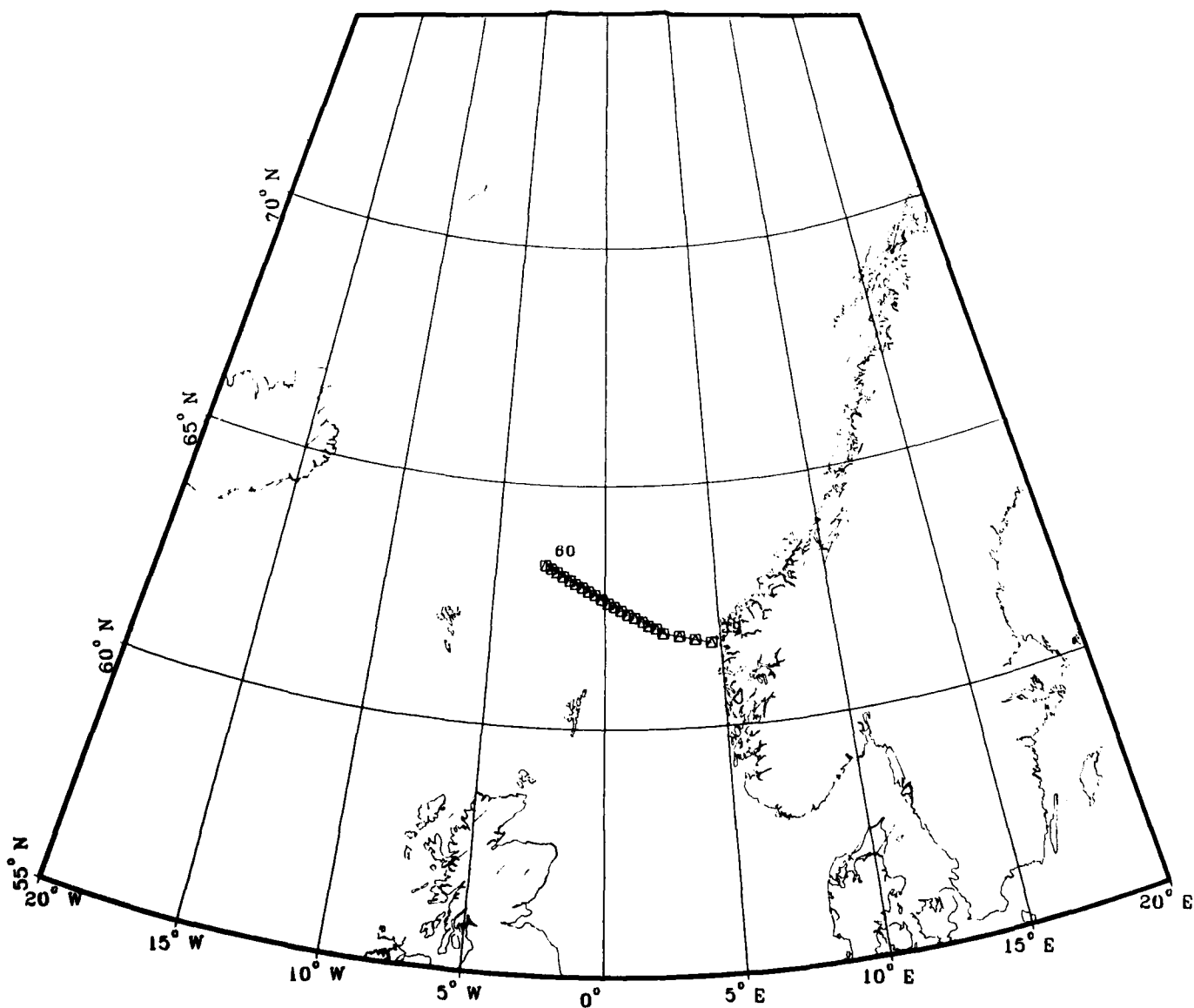


Figure 101. June 1936 (data set #1) station positions.

SOGNEFJORD SECTION

FILE = ICES\$ 1936Y1.DAT

T/S PLOT

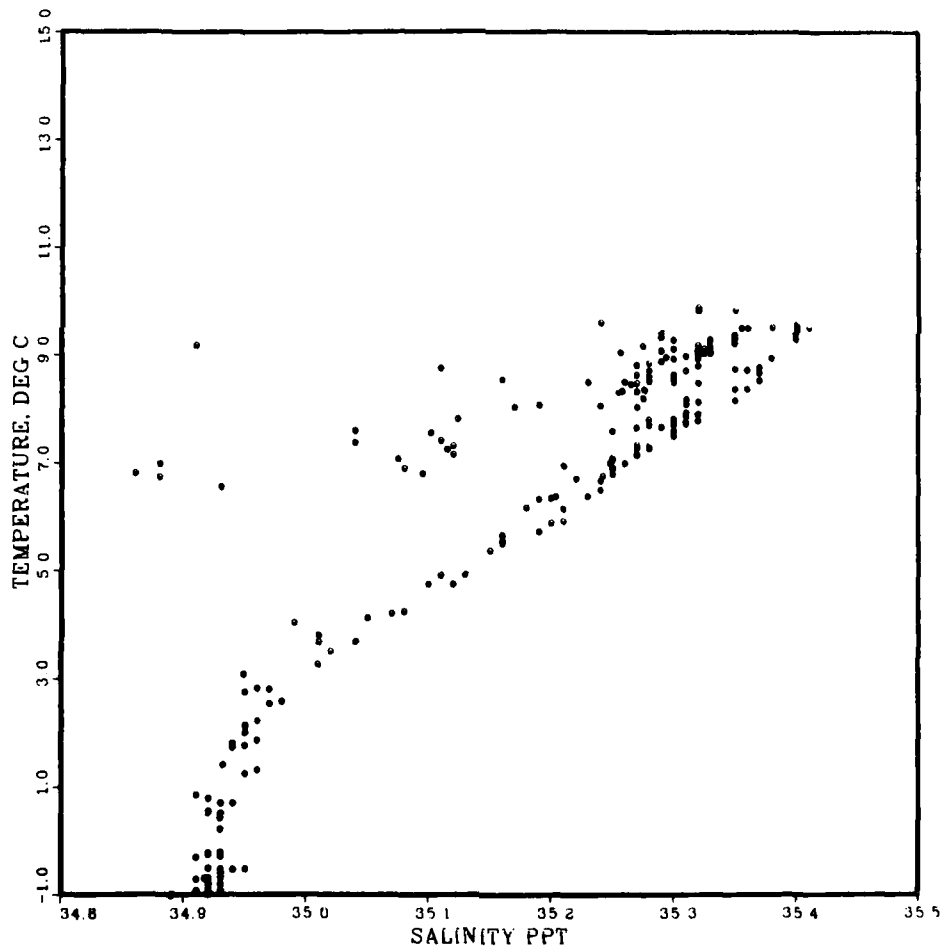


Figure 102. June 1936 (data set #1) temperature/salinity diagram.

SOGNEFJORD SECTION

FILE = ICES\$1936Y1.DAT:1
TEMPERATURE

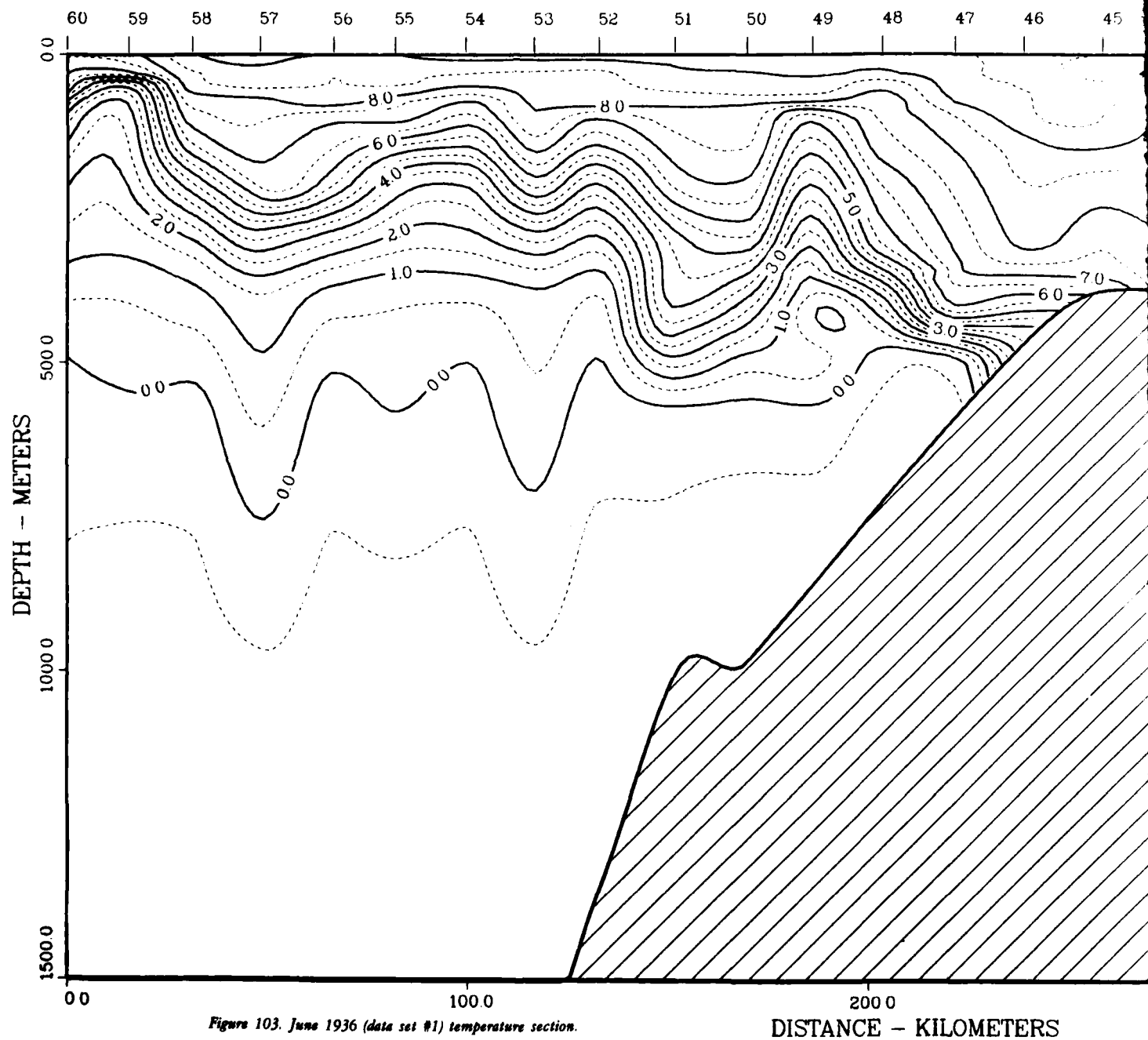
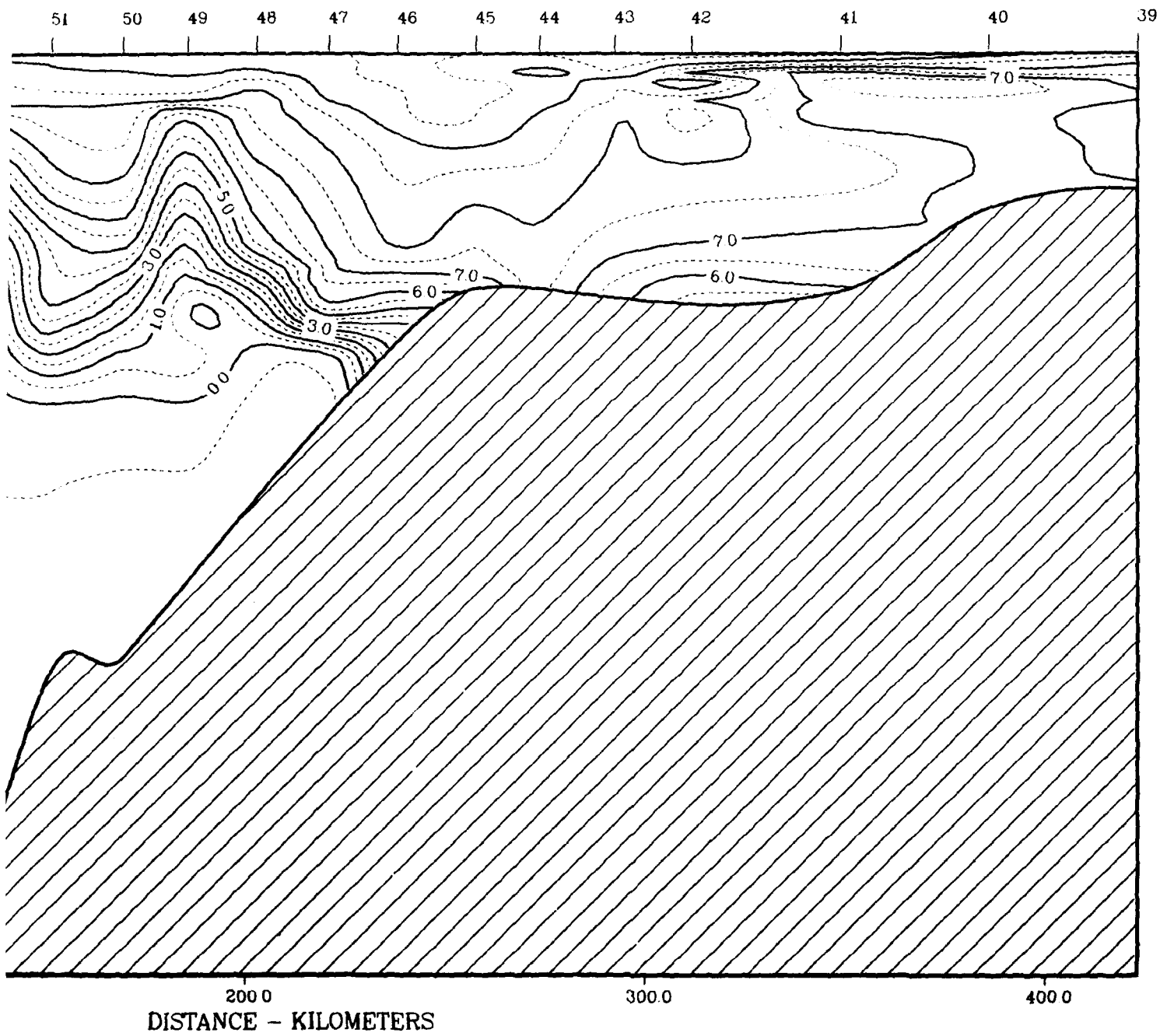


Figure 103. June 1936 (data set #1) temperature section.

DISTANCE - KILOMETERS

SOGNEFJORD SECTION
FILE = ICES\$1936Y1.DAT.1
TEMPERATURE



SOGNEFJORD SECTION
 FILE = ICES\$1936Y1.DAT1
 SALINITY

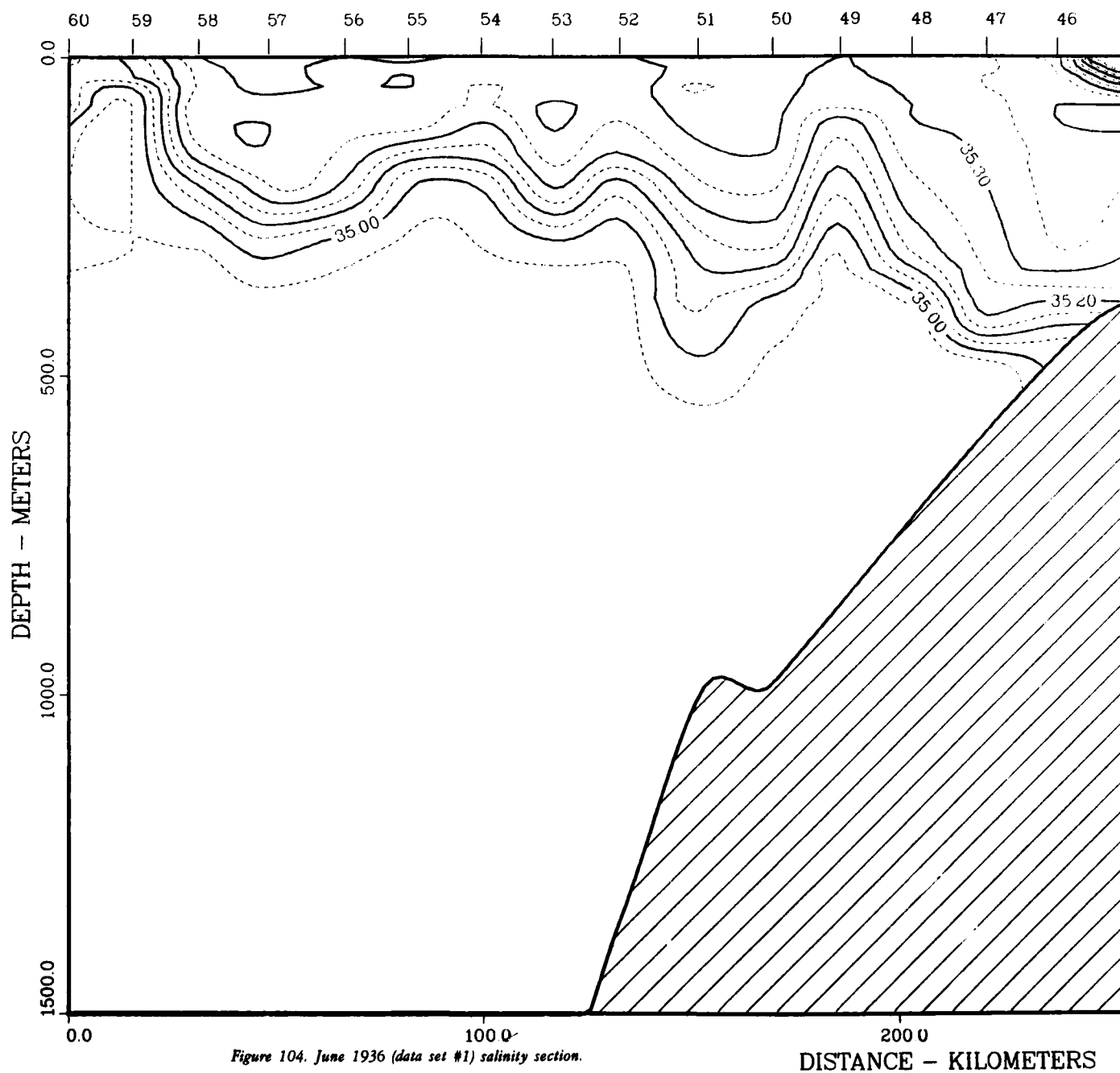
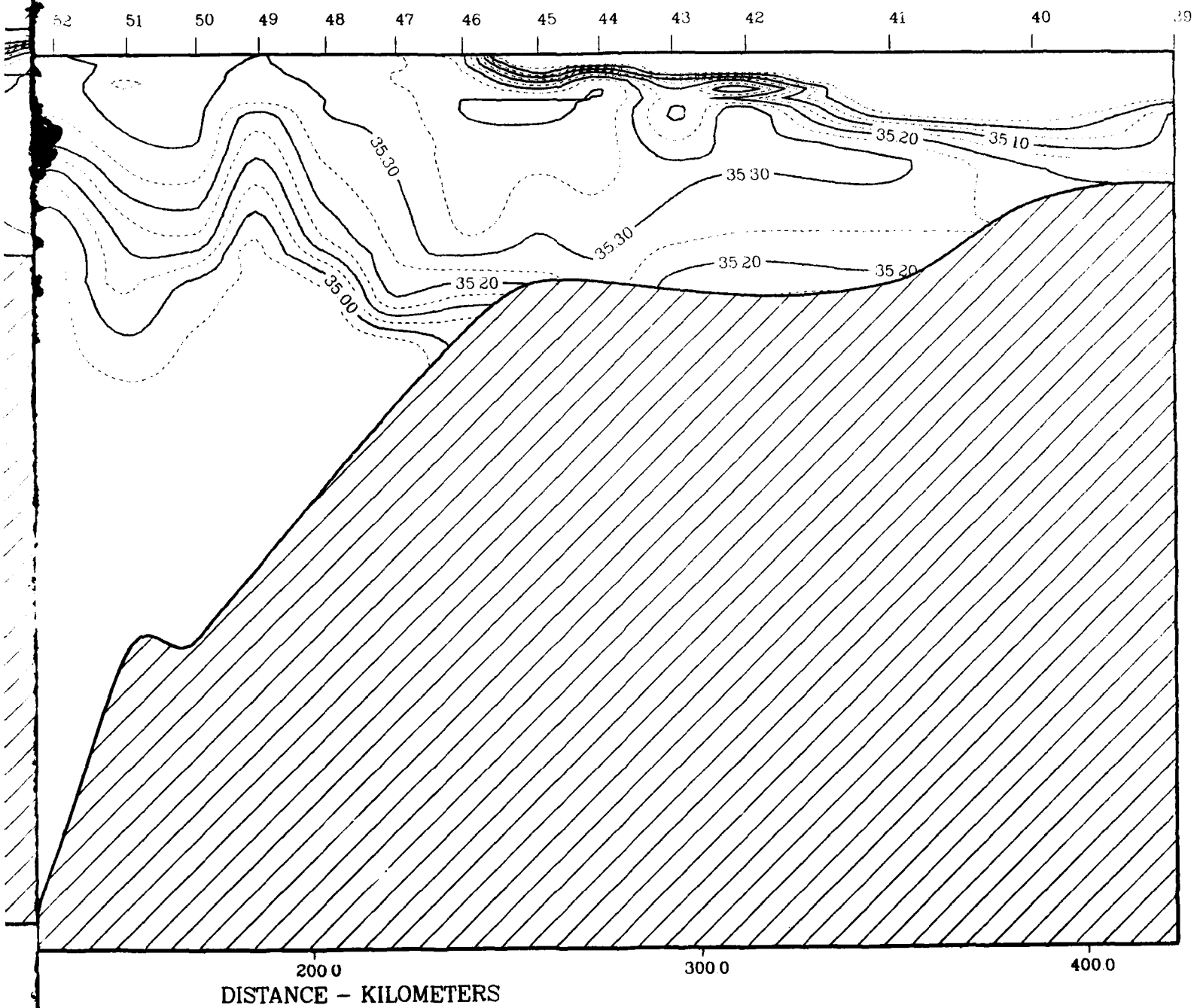


Figure 104. June 1936 (data set #1) salinity section.

SOGNEFJORD SECTION
FILE = ICES\$1936Y1.DAT.1
SALINITY



ICES\$:1936A3.DAT

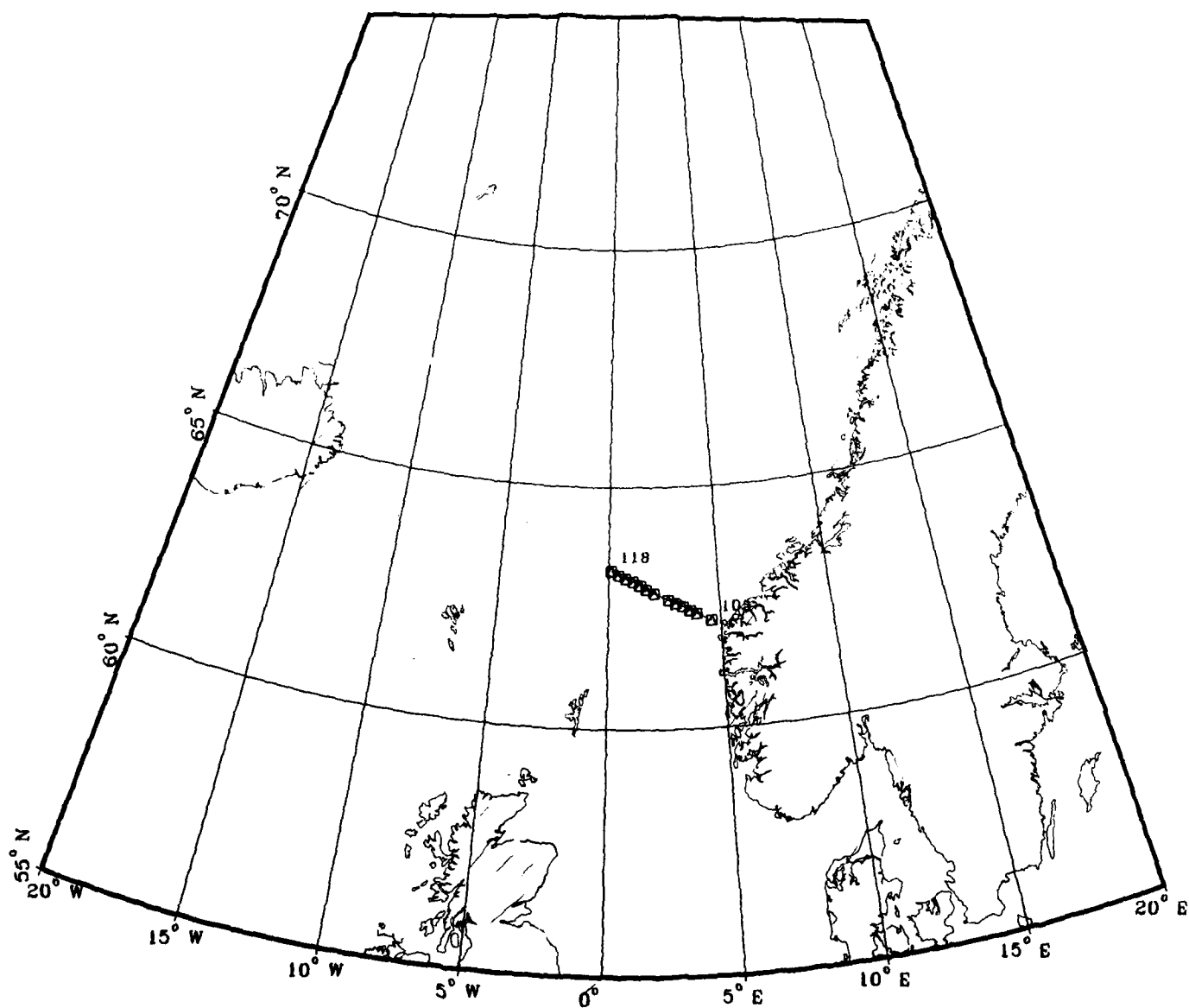


Figure 105. June 1936 (data set #3) station positions.

SOGNEFJORD SECTION
FILE = ICES\$1936A3.DAT
T/S PLOT

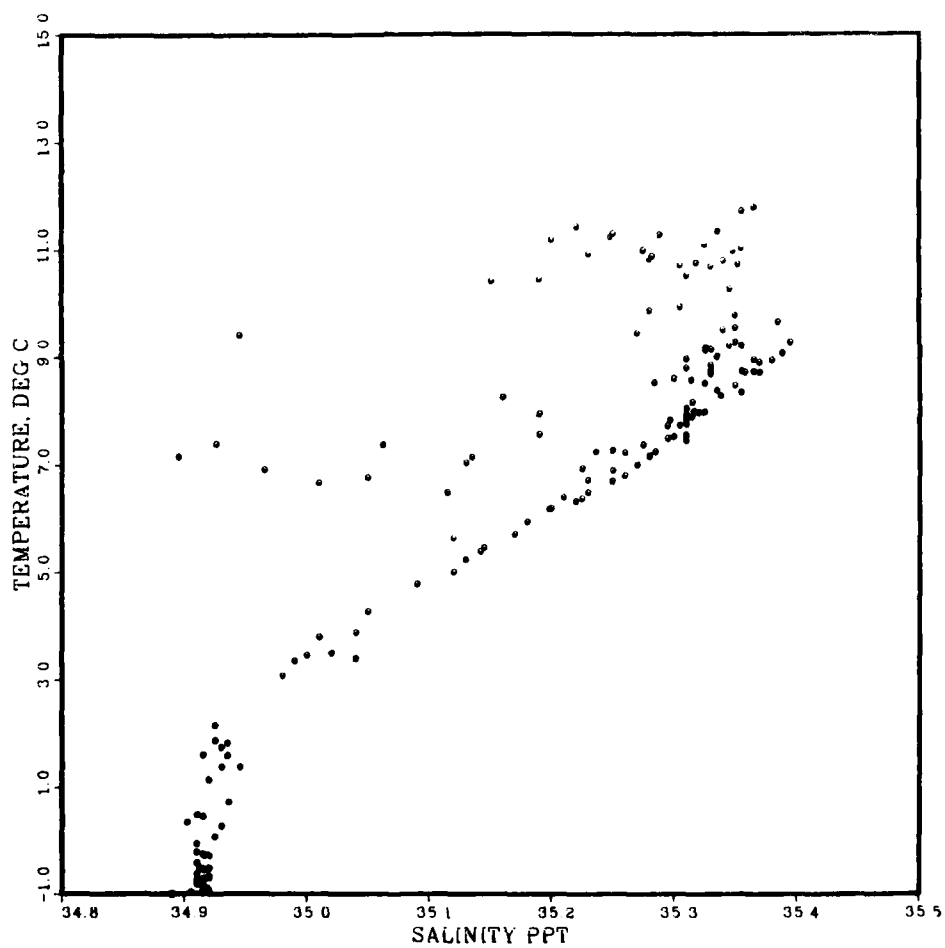


Figure 106. June 1936 (data set #3) temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$:1936A3.DAT:1
 TEMPERATURE

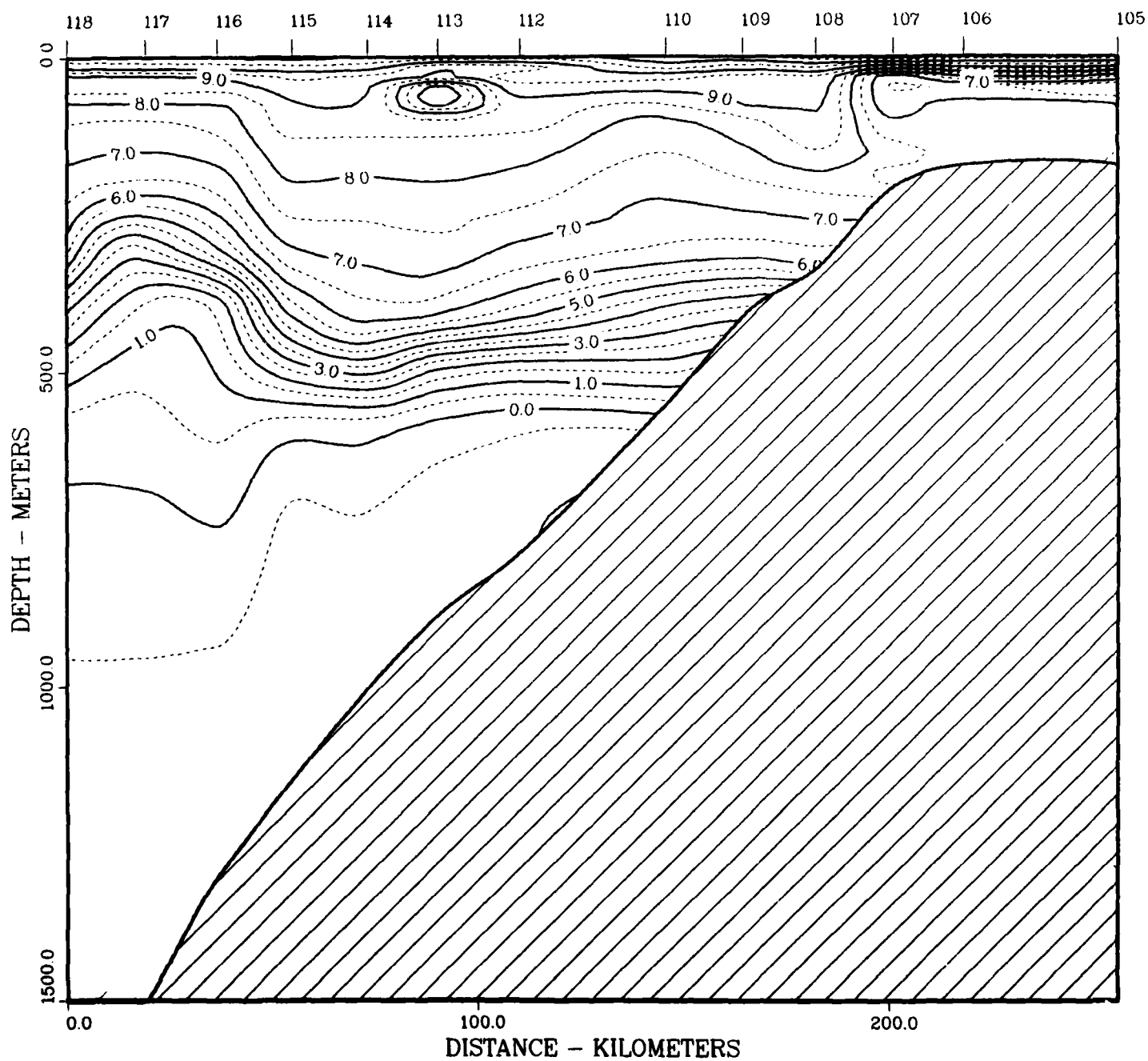


Figure 107. June 1936 (data set #3) temperature section.

SOGNEFJORD SECTION

FILE = ICES\$1936A3 DAT 1
SALINITY

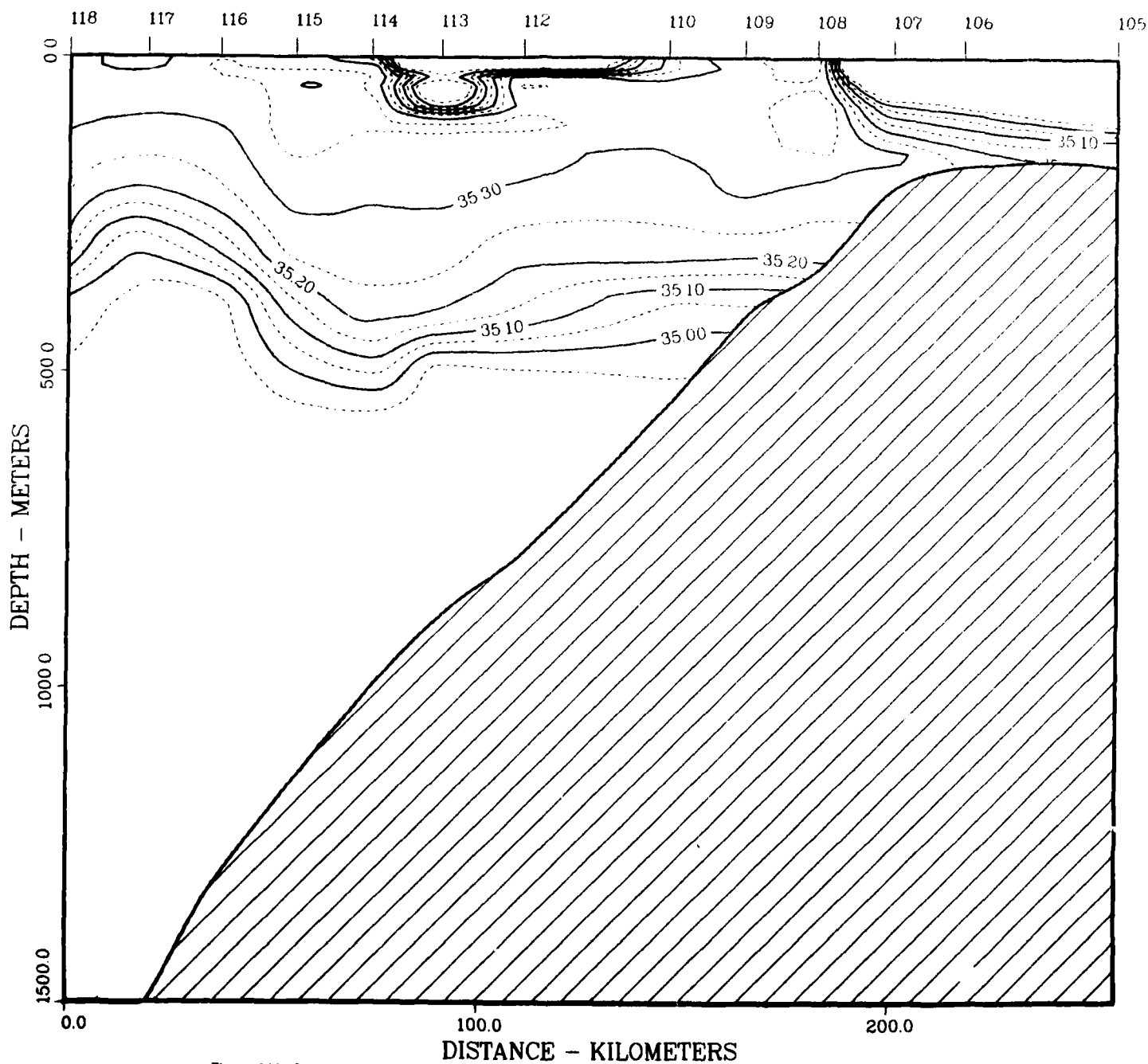


Figure 108. June 1936 (data set #3) salinity section.

ICES\$:1936B5.DAT

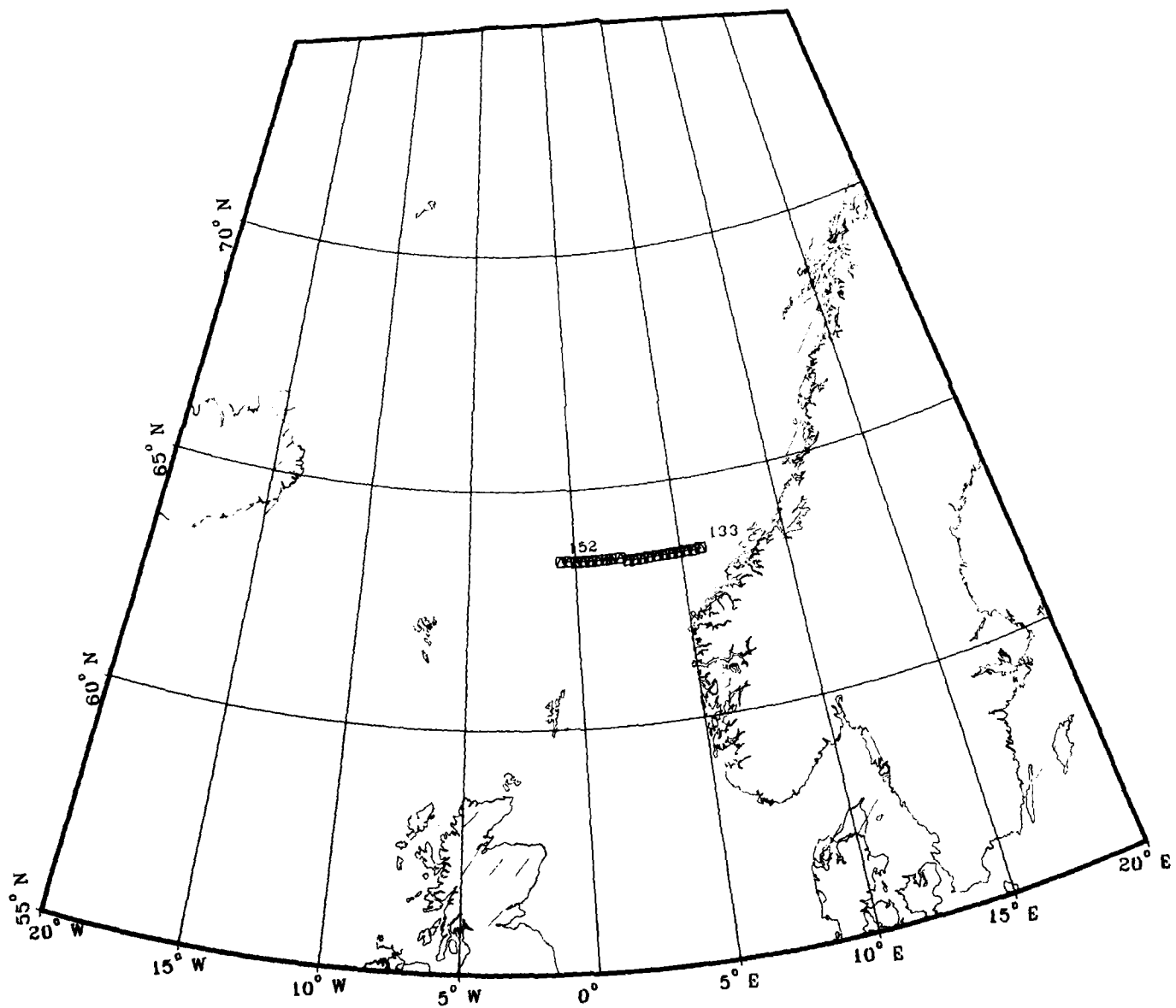


Figure 109. June 1936 (data set #5) station positions.

SOGNEFJORD SECTION

FILE = ICES\$1936B5.DAT

T/S PLOT

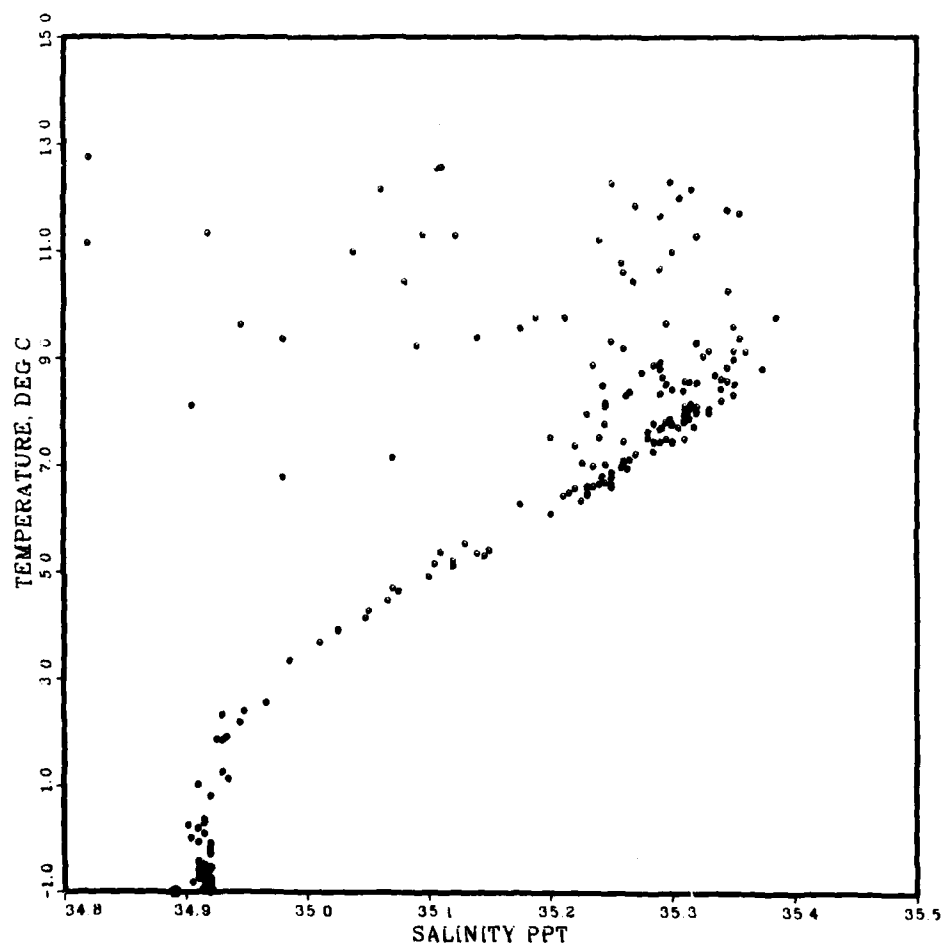


Figure 110. June 1936 (data set #5) temperature/salinity diagram.

SOGNEFJORD SECTION

FILE = ICES\$1936B5.DAT;1
TEMPERATURE

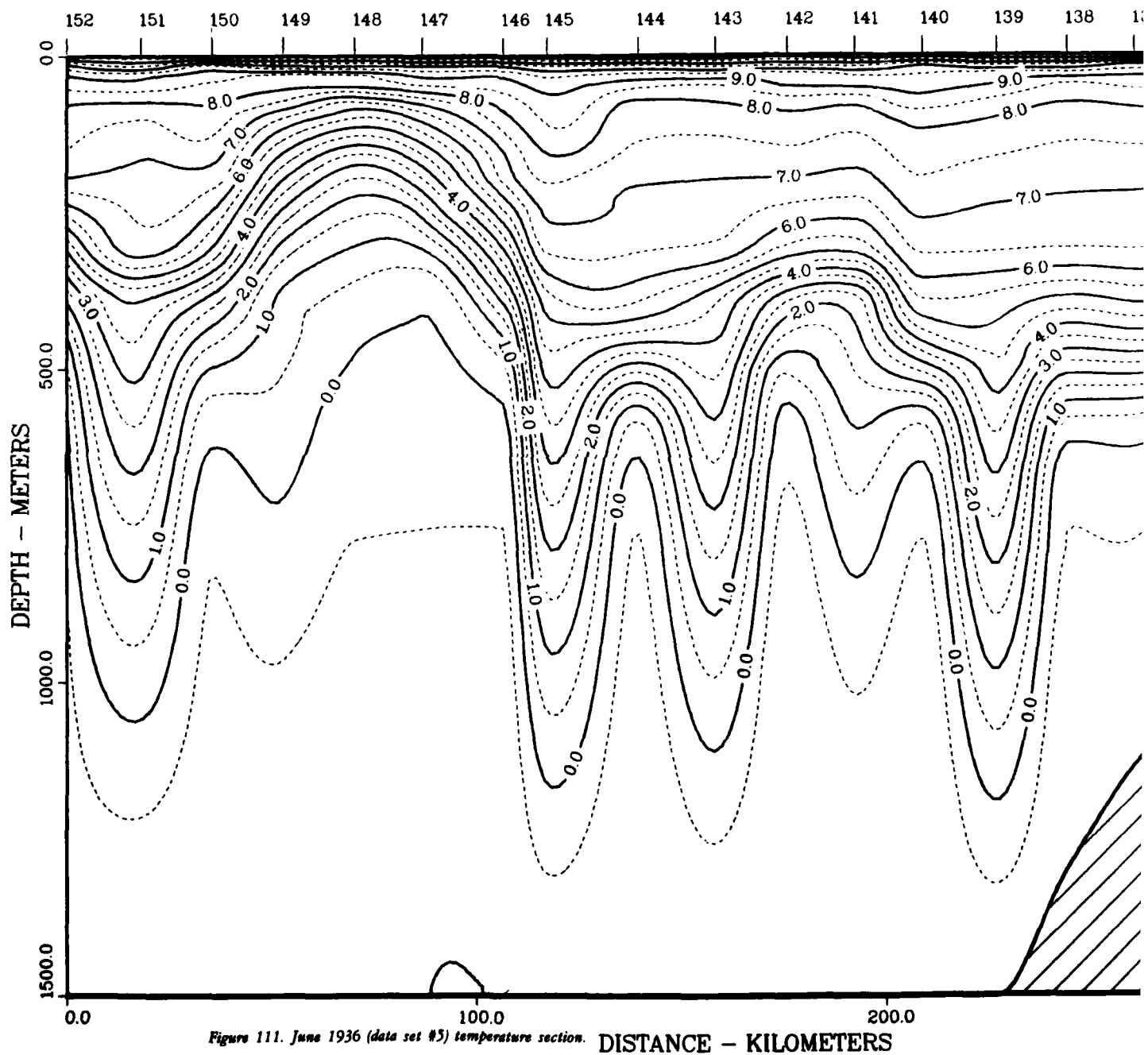
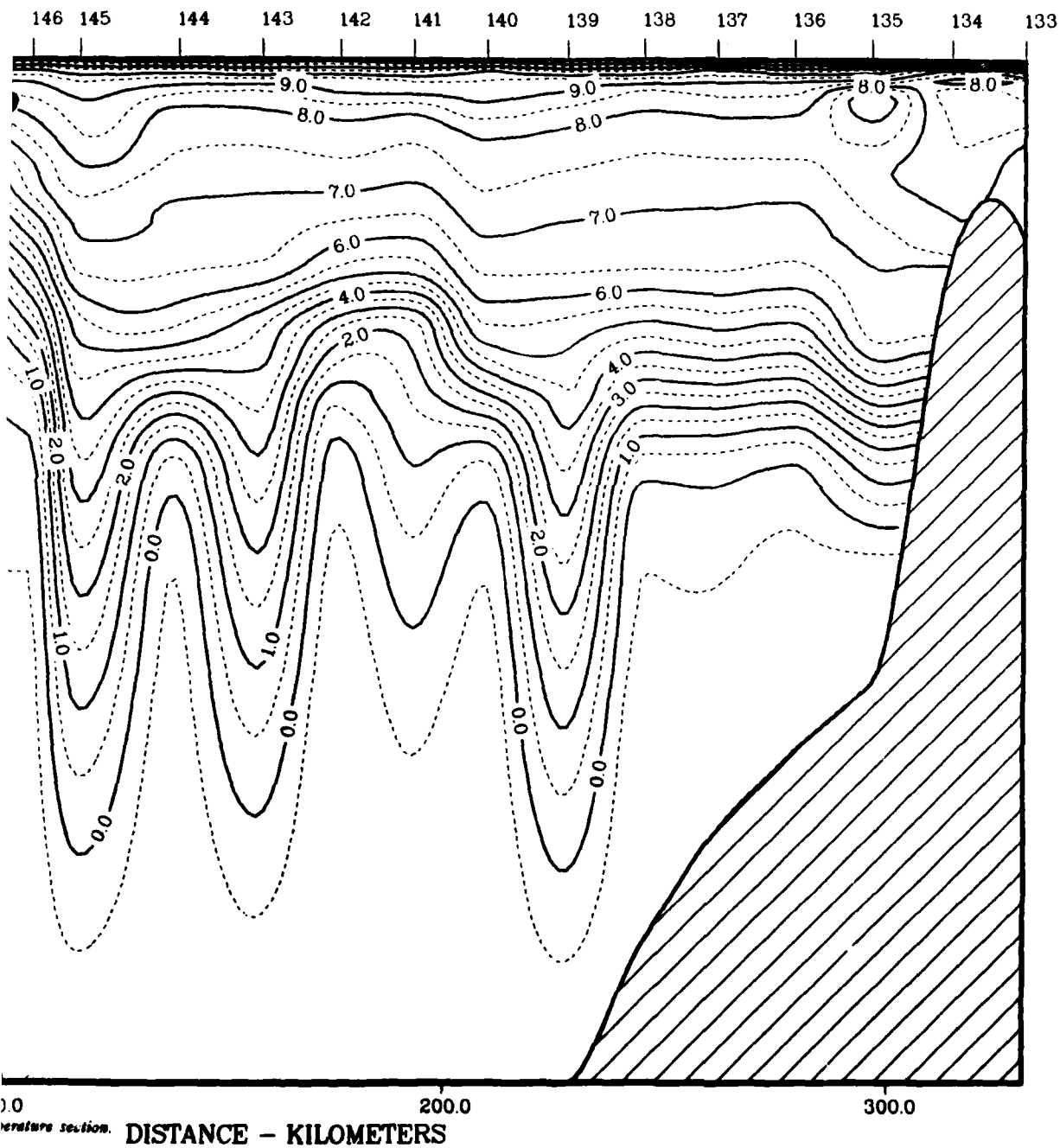


Figure 111. June 1936 (data set #5) temperature section.

SOGNEFJORD SECTION
 FILE = ICES1936B5.DAT:1
 TEMPERATURE



SOGNEFJORD SECTION

FILE = ICES\$.1936B5.DAT;1

SALINITY

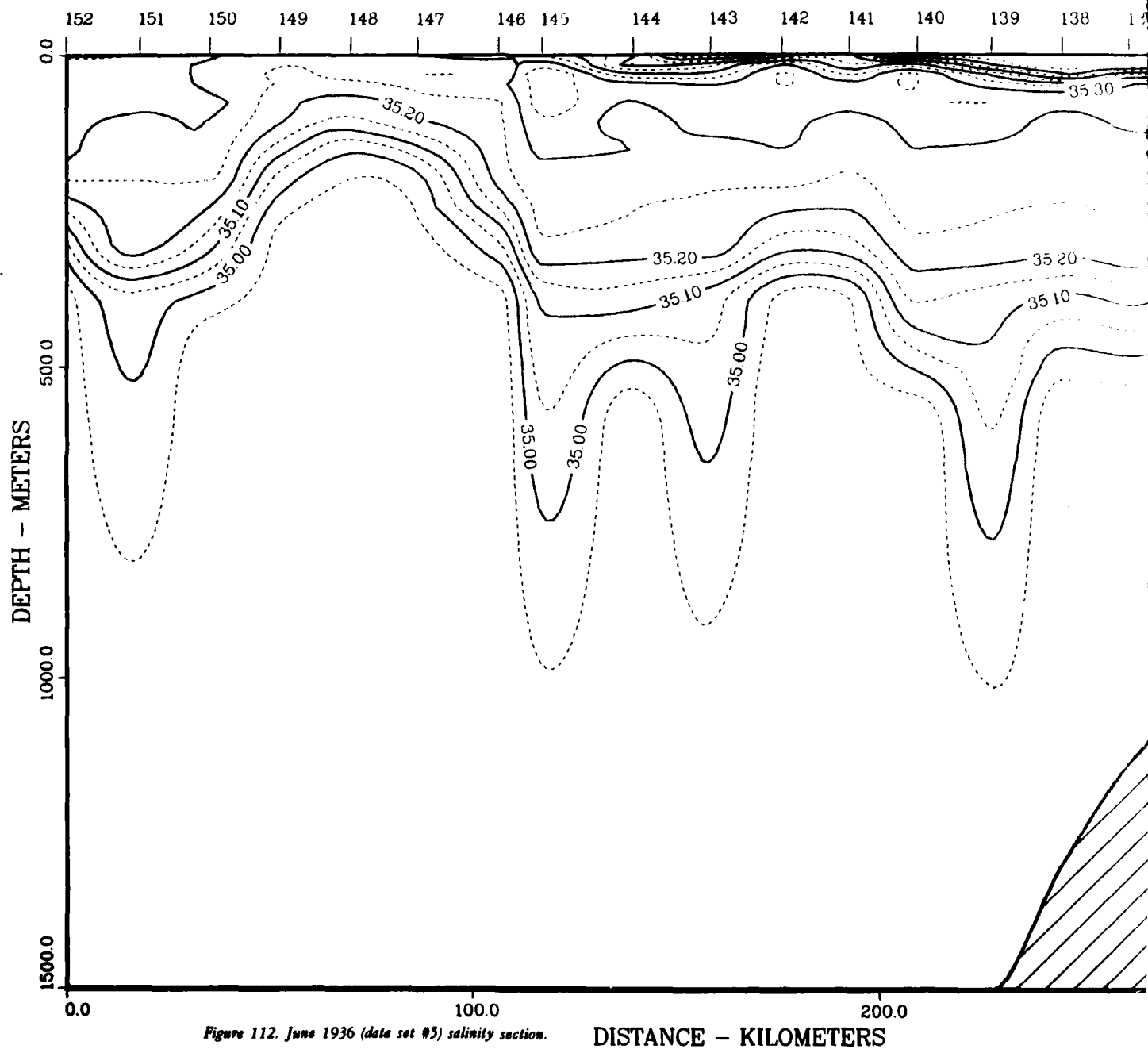
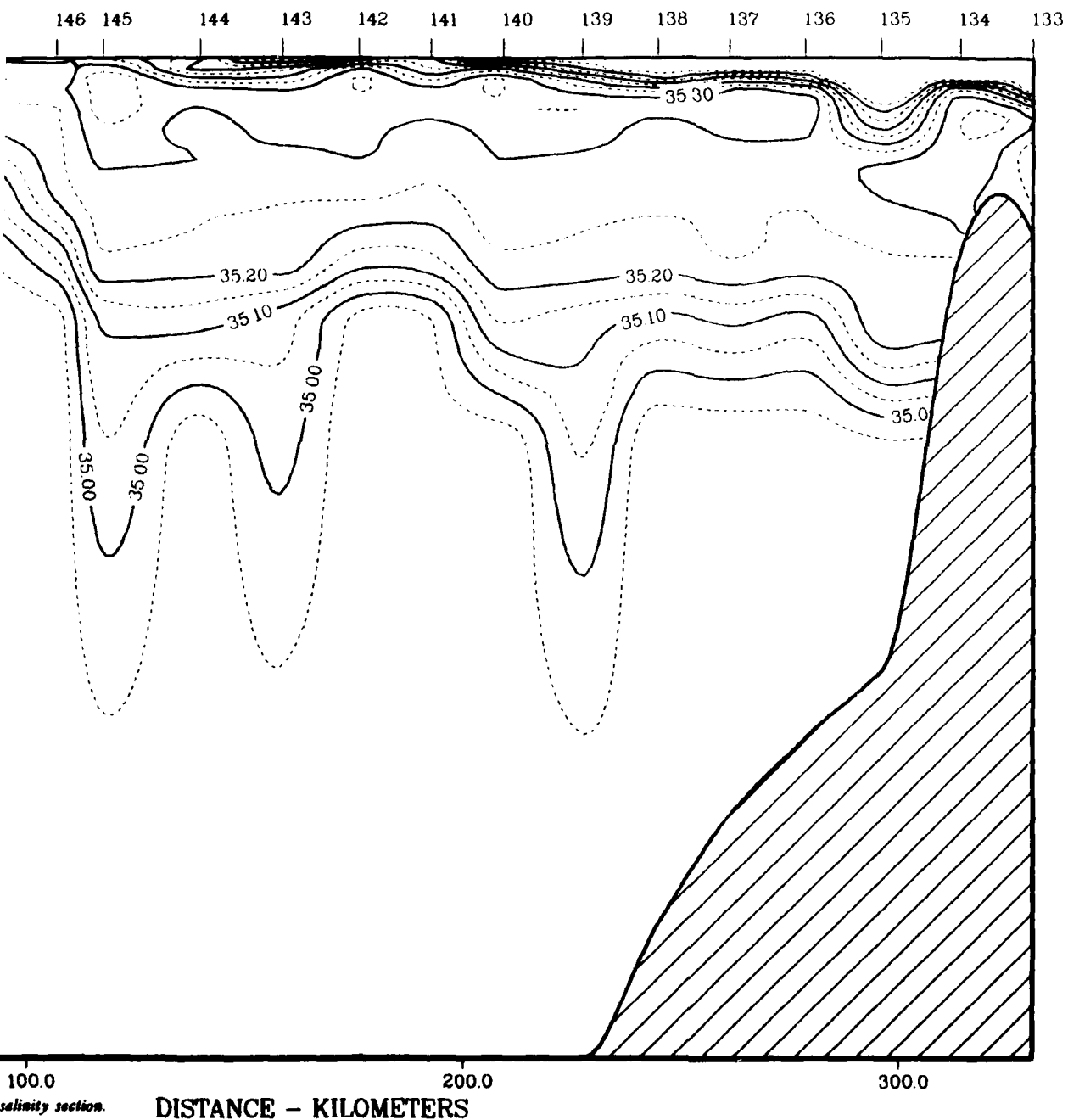


Figure 112. June 1936 (data set #5) salinity section.

DISTANCE - KILOMETERS

SOGNEFJORD SECTION
FILE = ICES1936B5 DAT:1
SALINITY



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ICES\$.1936C6.DAT

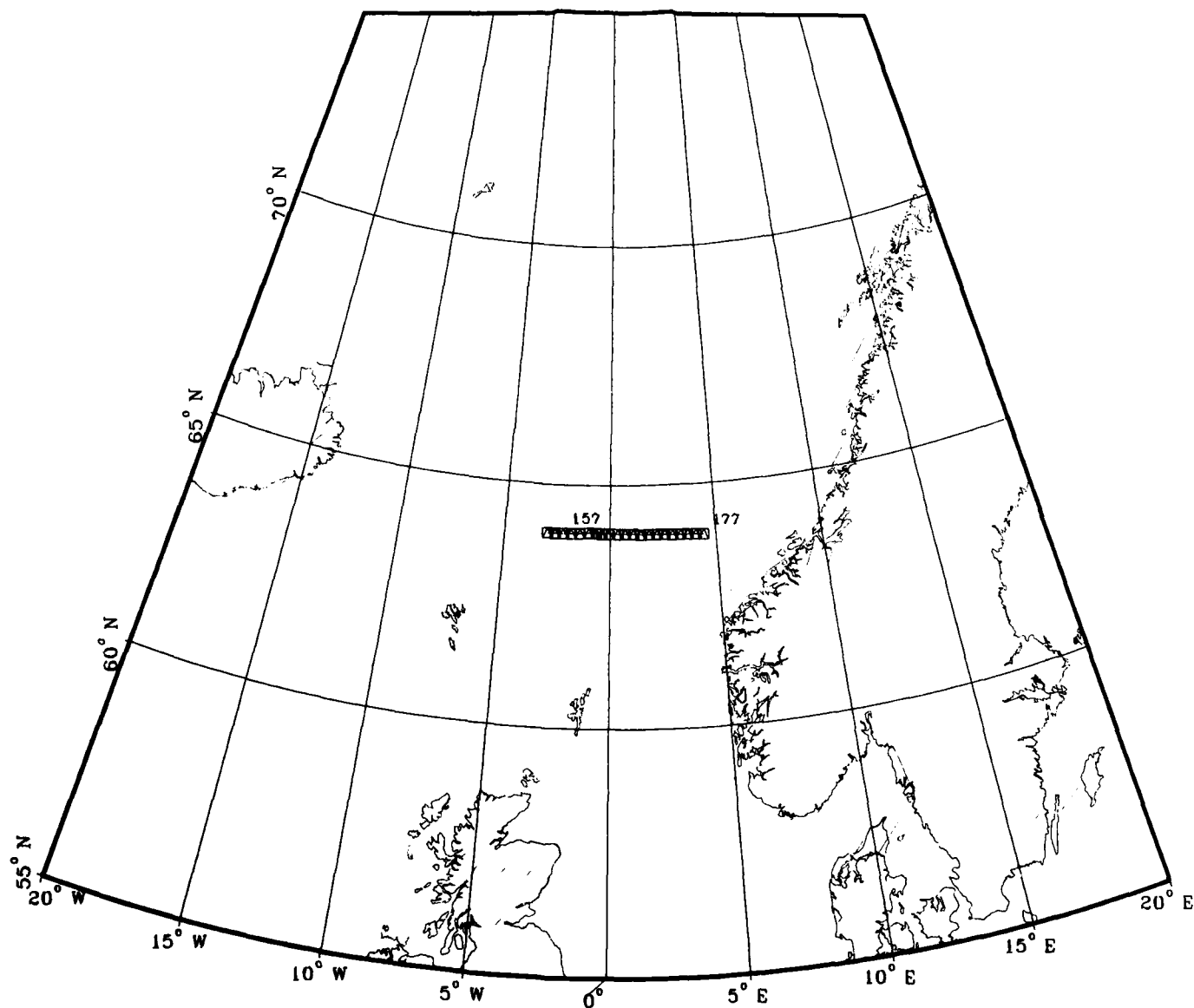


Figure 113. June 1936 (data set #6) station positions.

SOGNEFJORD SECTION
FILE = ICES\$ 1936C6 DAT
T/S PLOT

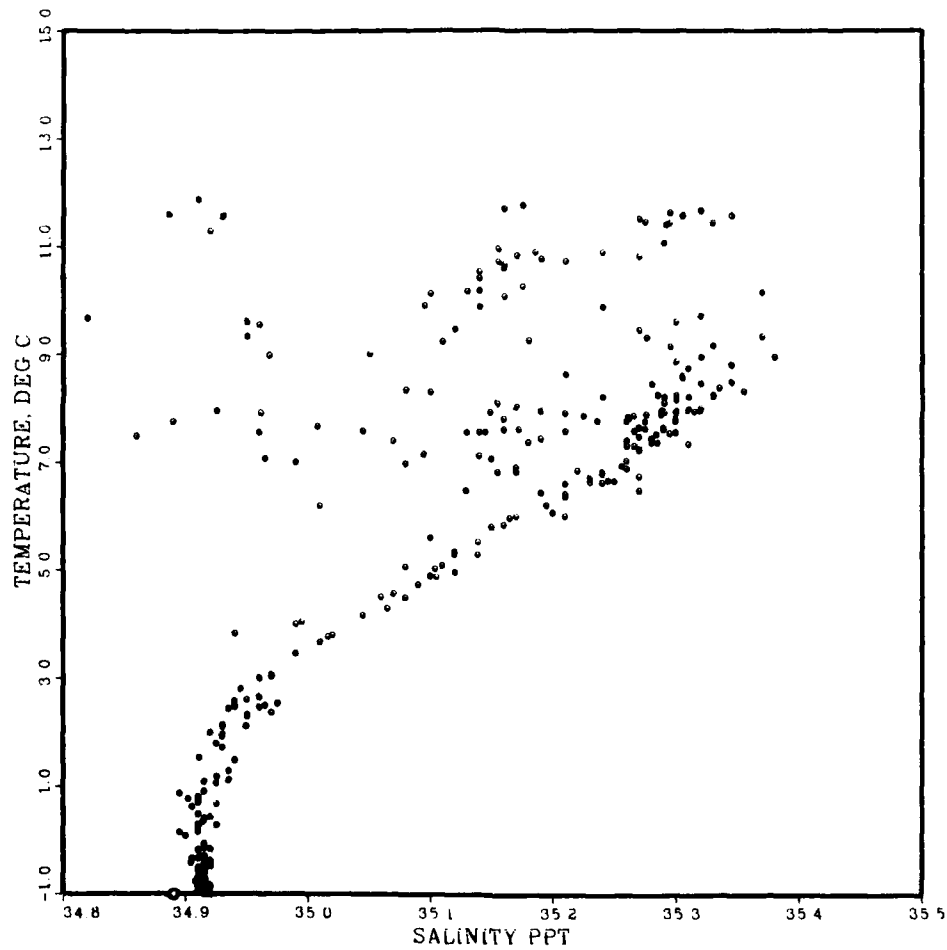
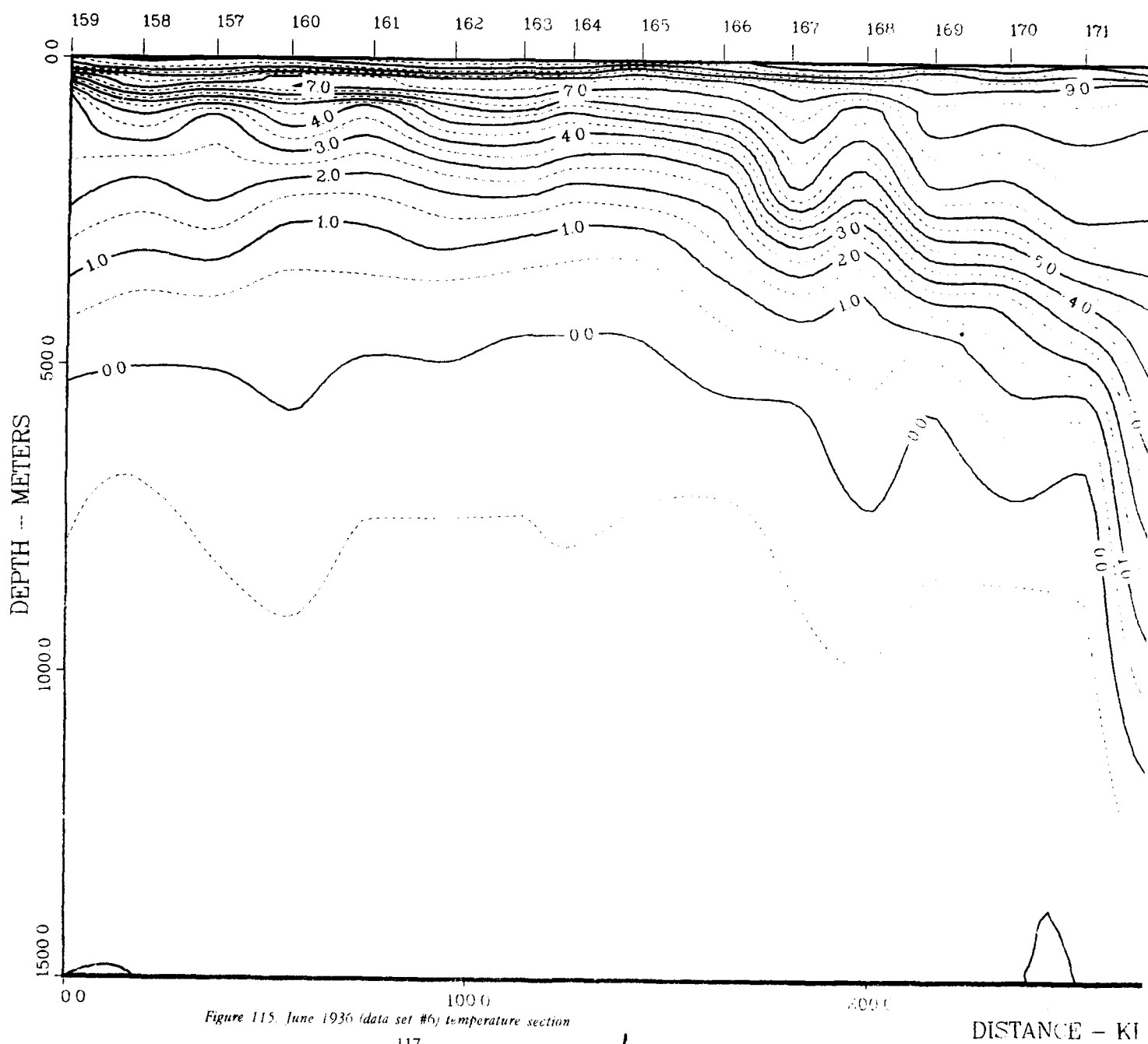


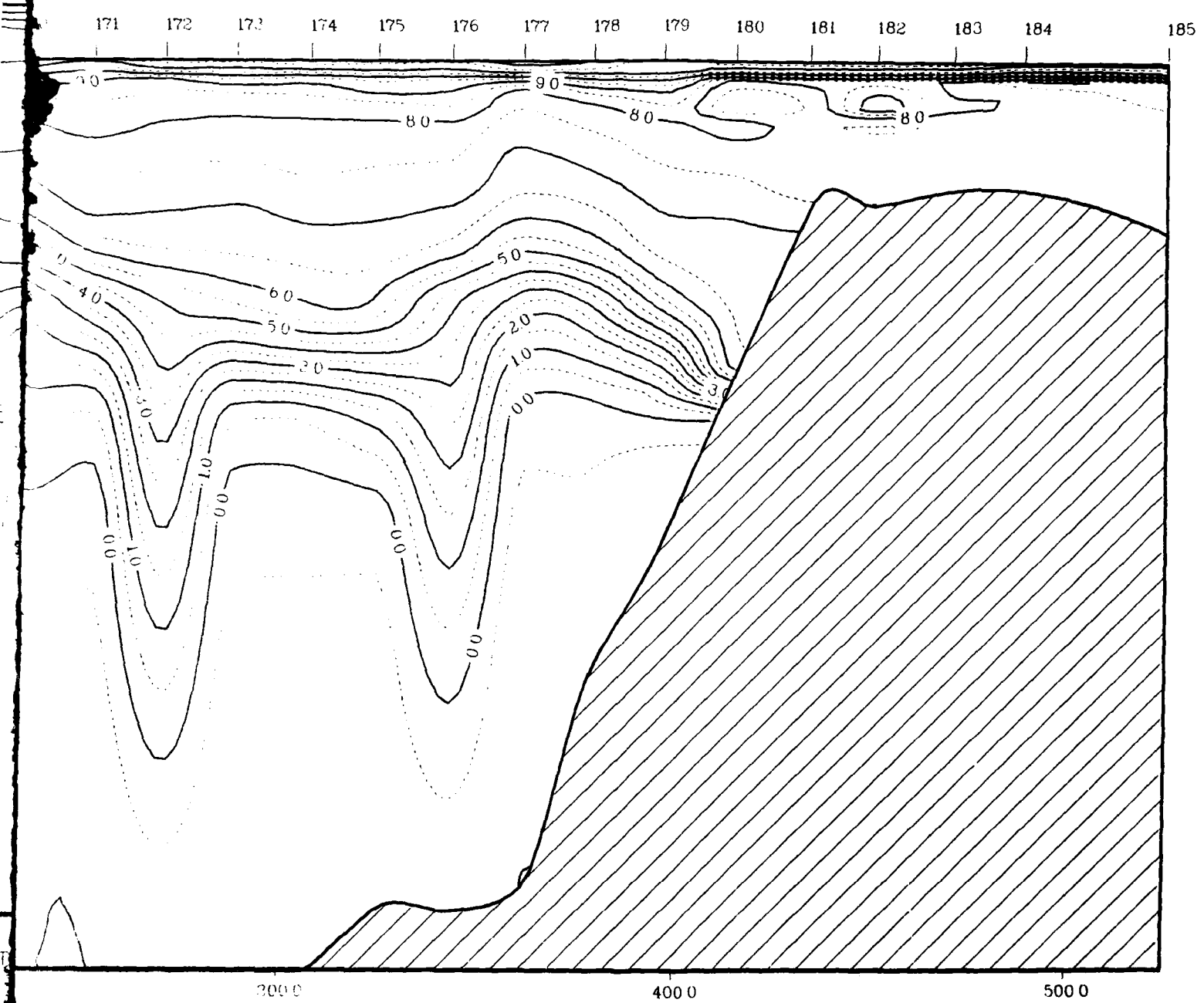
Figure 114. June 1936 (data set #6) temperature/salinity diagram.

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FILE = ICES\$193606 DAT1
TEMPERATURE



DISTANCE - KILOMETERS

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SOGNEFJORD SECTION
FILE = ICES\$1936C6.DAT
SALINITY

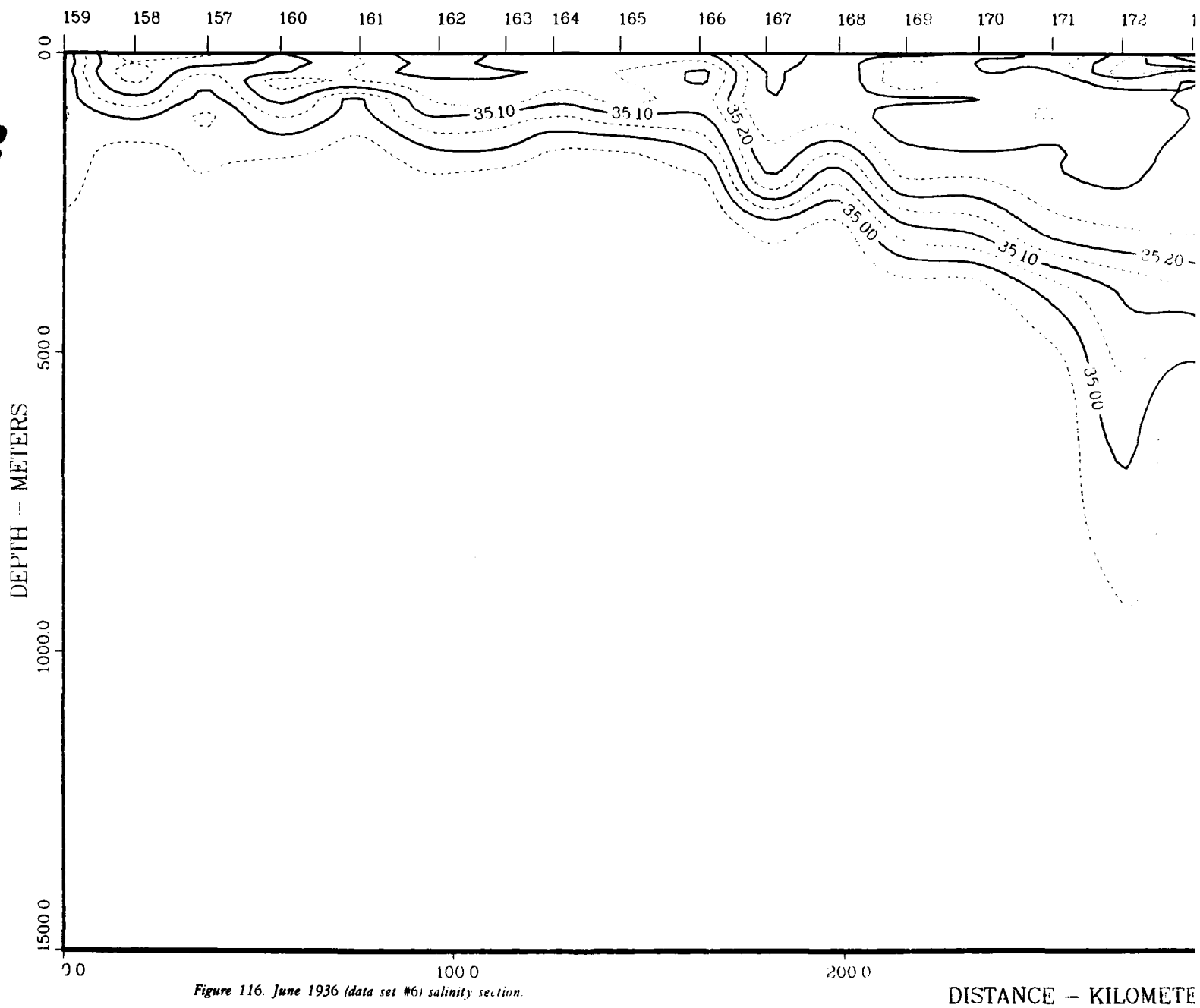
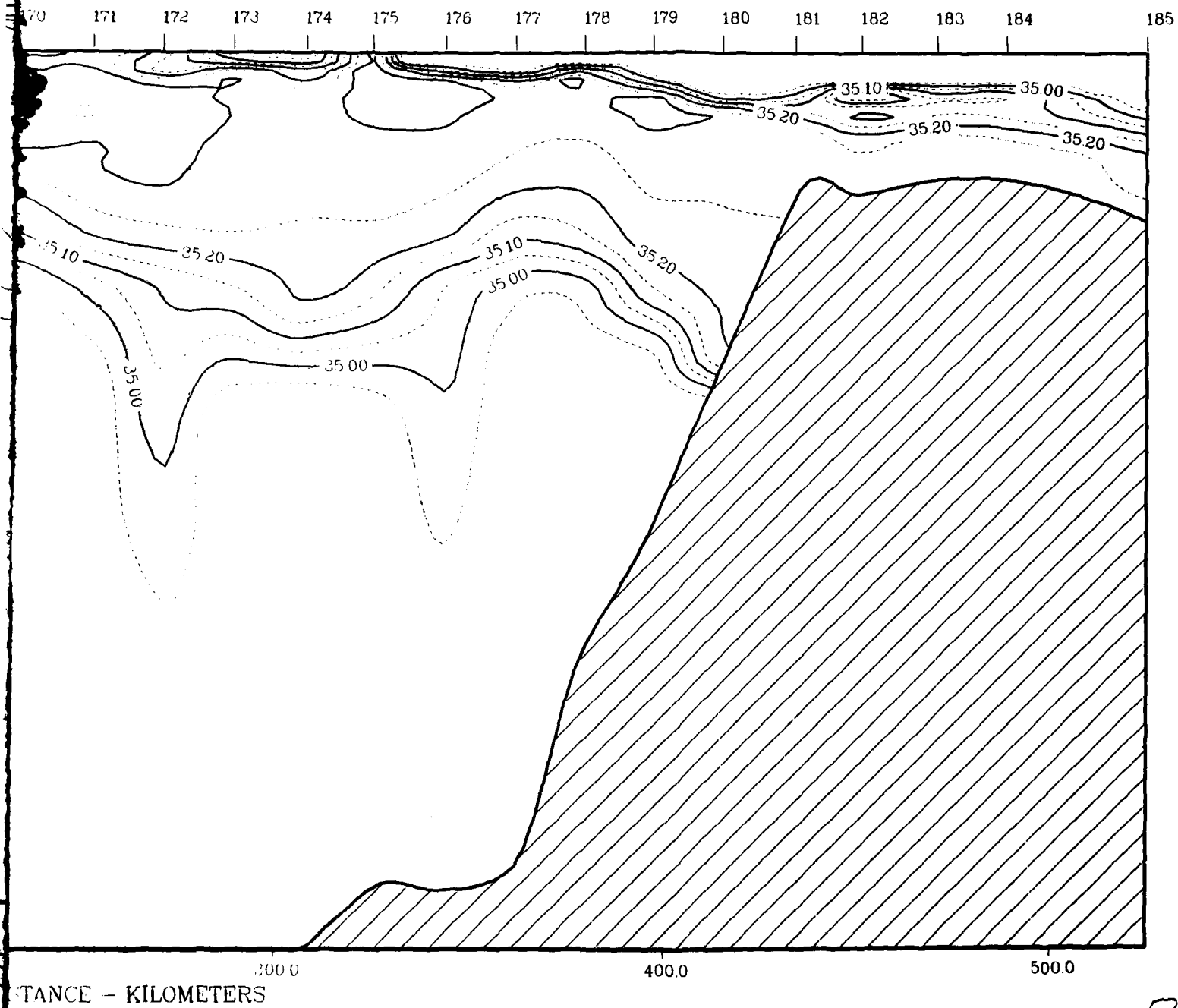


Figure 116. June 1936 (data set #6) salinity section.

OGNEFJORD SECTION
FILE = ICES 1936C6 DAT 1
SALINITY



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ICES\$:1936D7.DAT

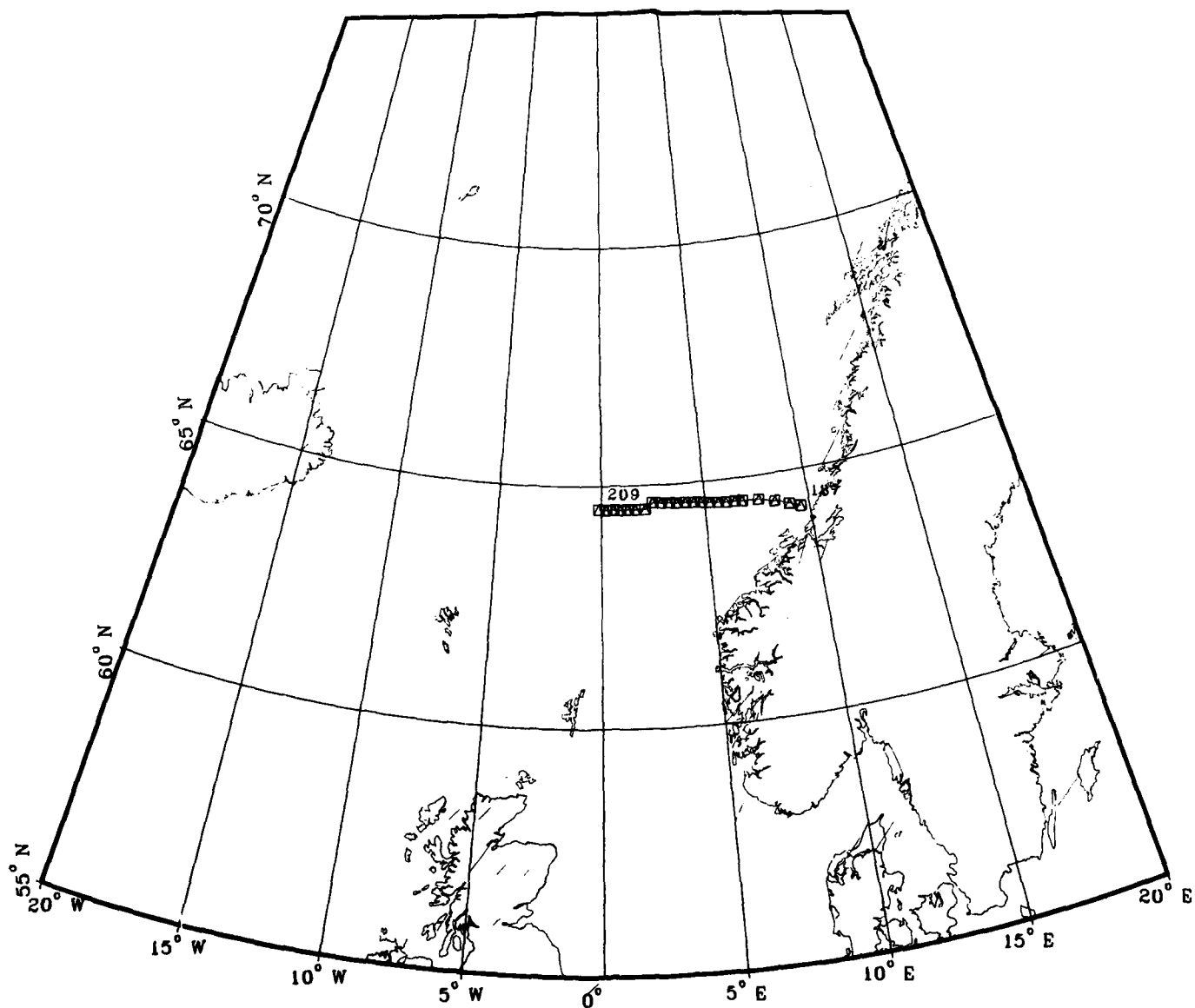


Figure 117. June 1936 (data set #7) station positions.

SOGNEFJORD SECTION
FILE = ICES\$1936D7.DAT
T/S PLOT

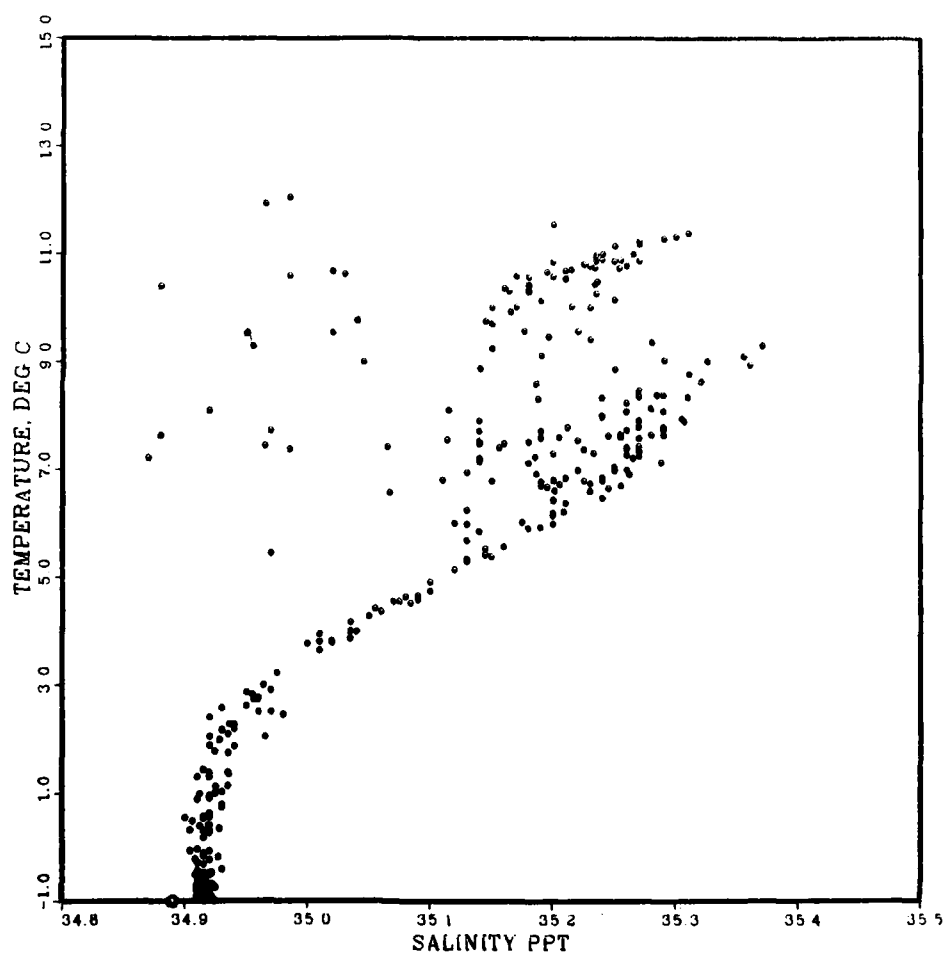


Figure 118. June 1936 (data set #7) temperature/salinity diagram.

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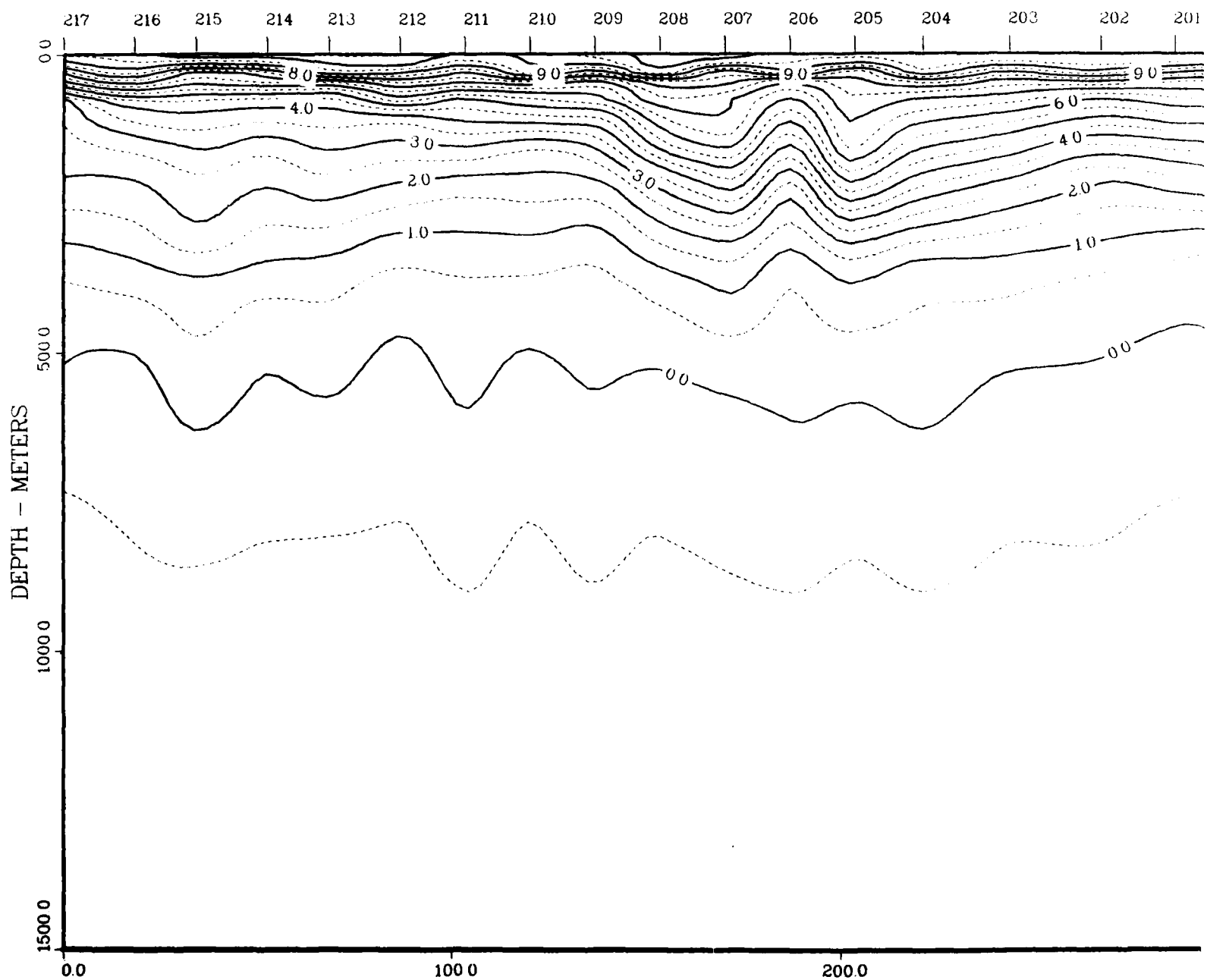
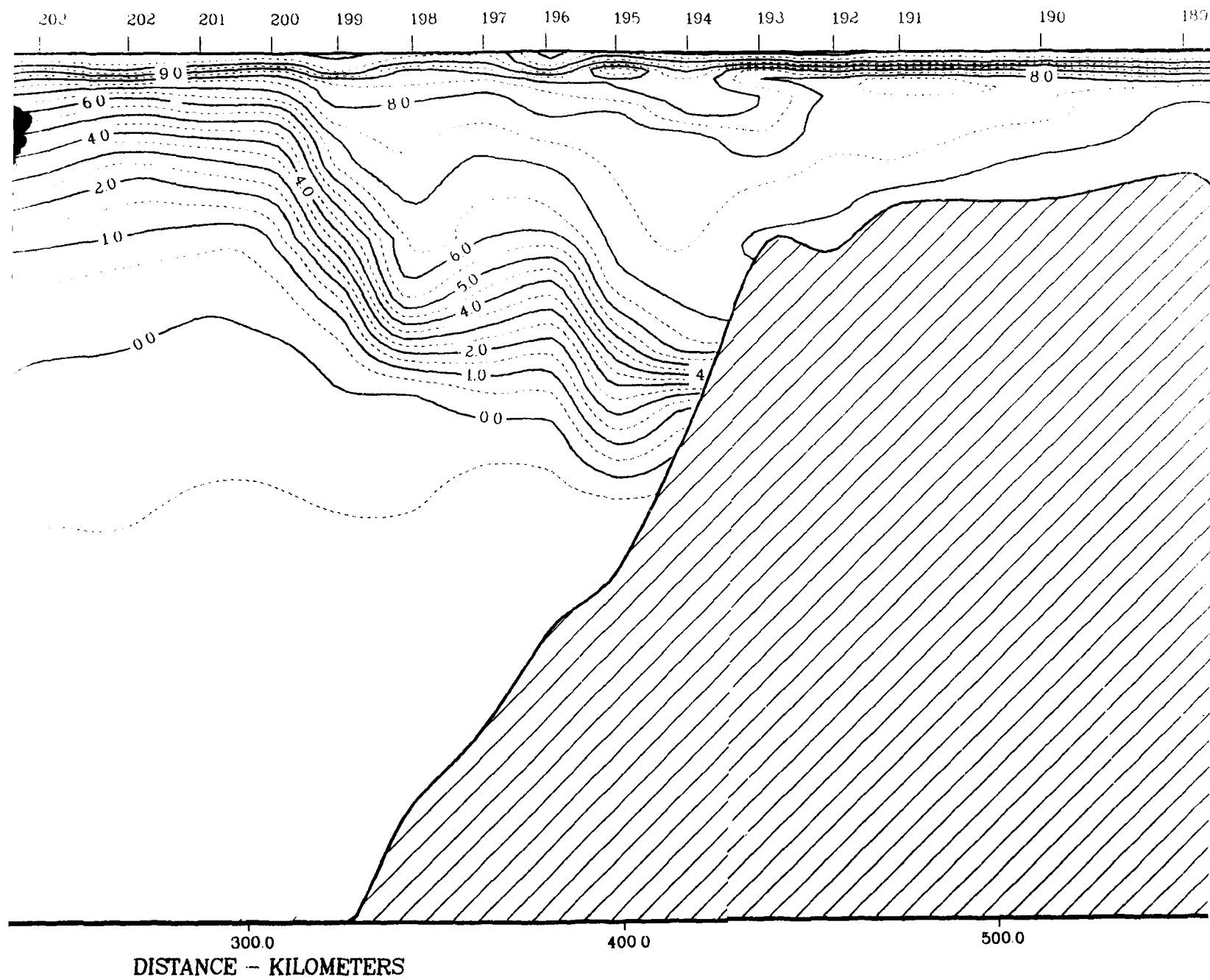


Figure 119. June 1936 (data set #7) temperature section.

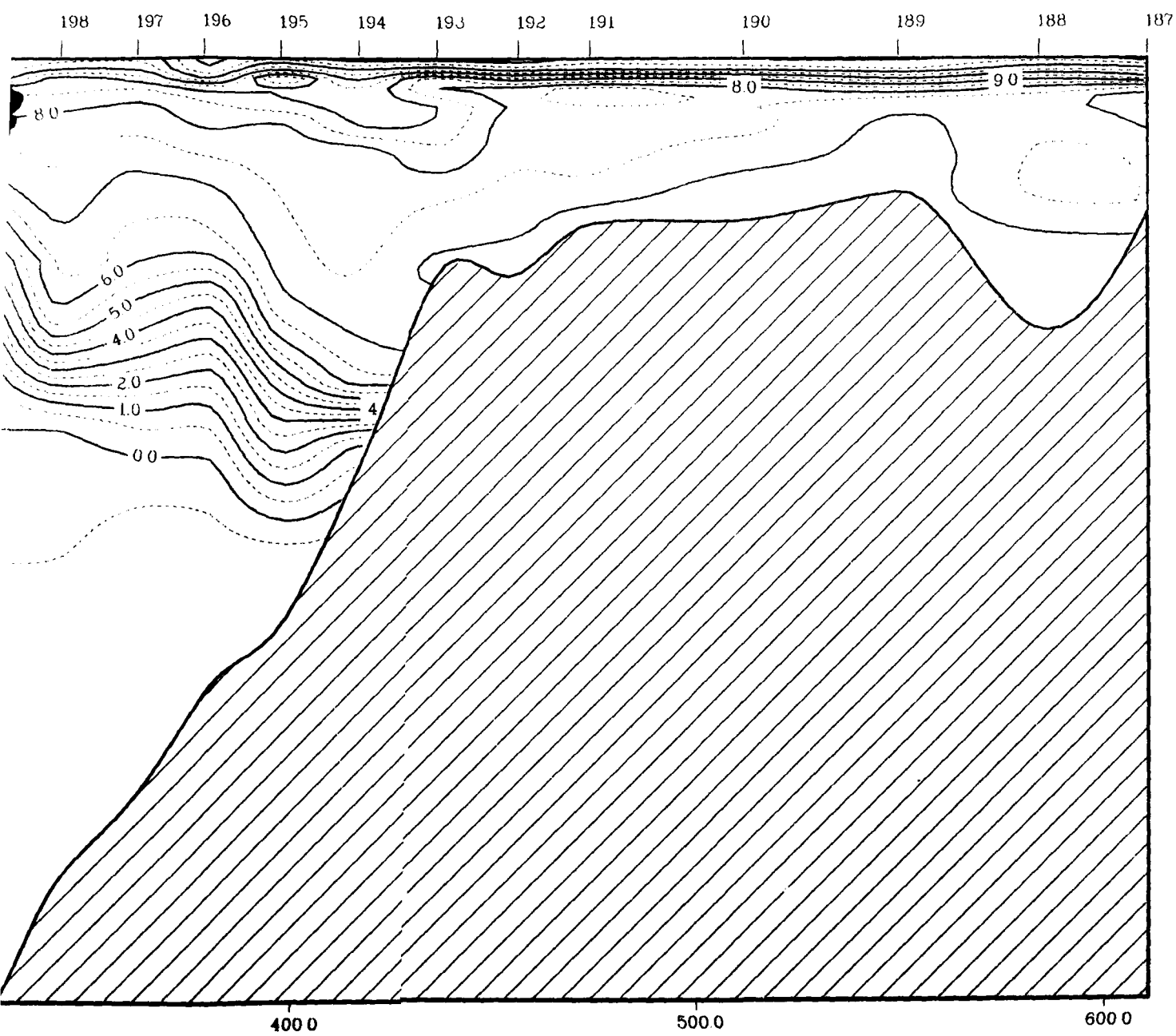
SOGNEFJORD SECTION
FILE = ICES\$1936D7 DAT:1
TEMPERATURE



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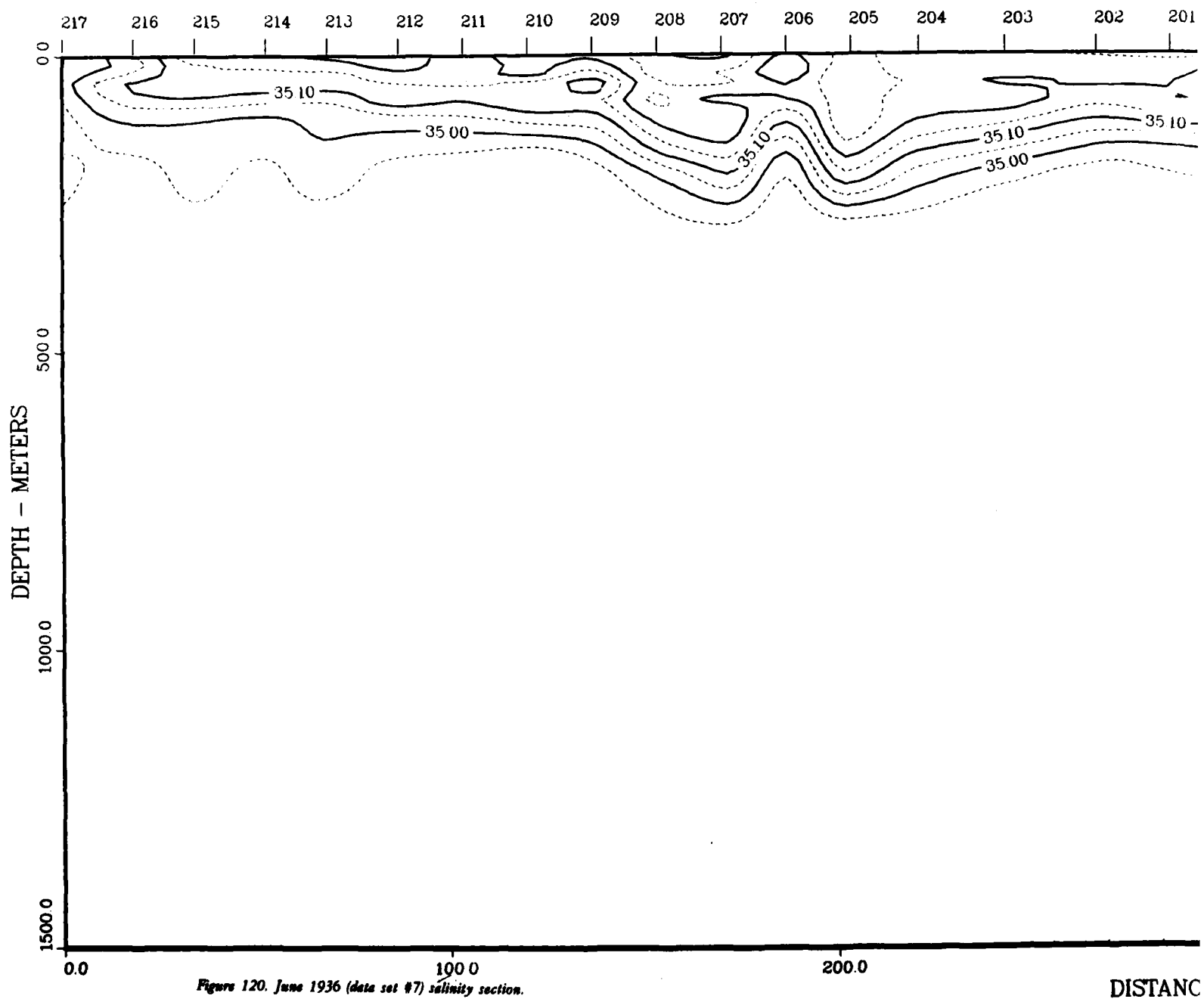
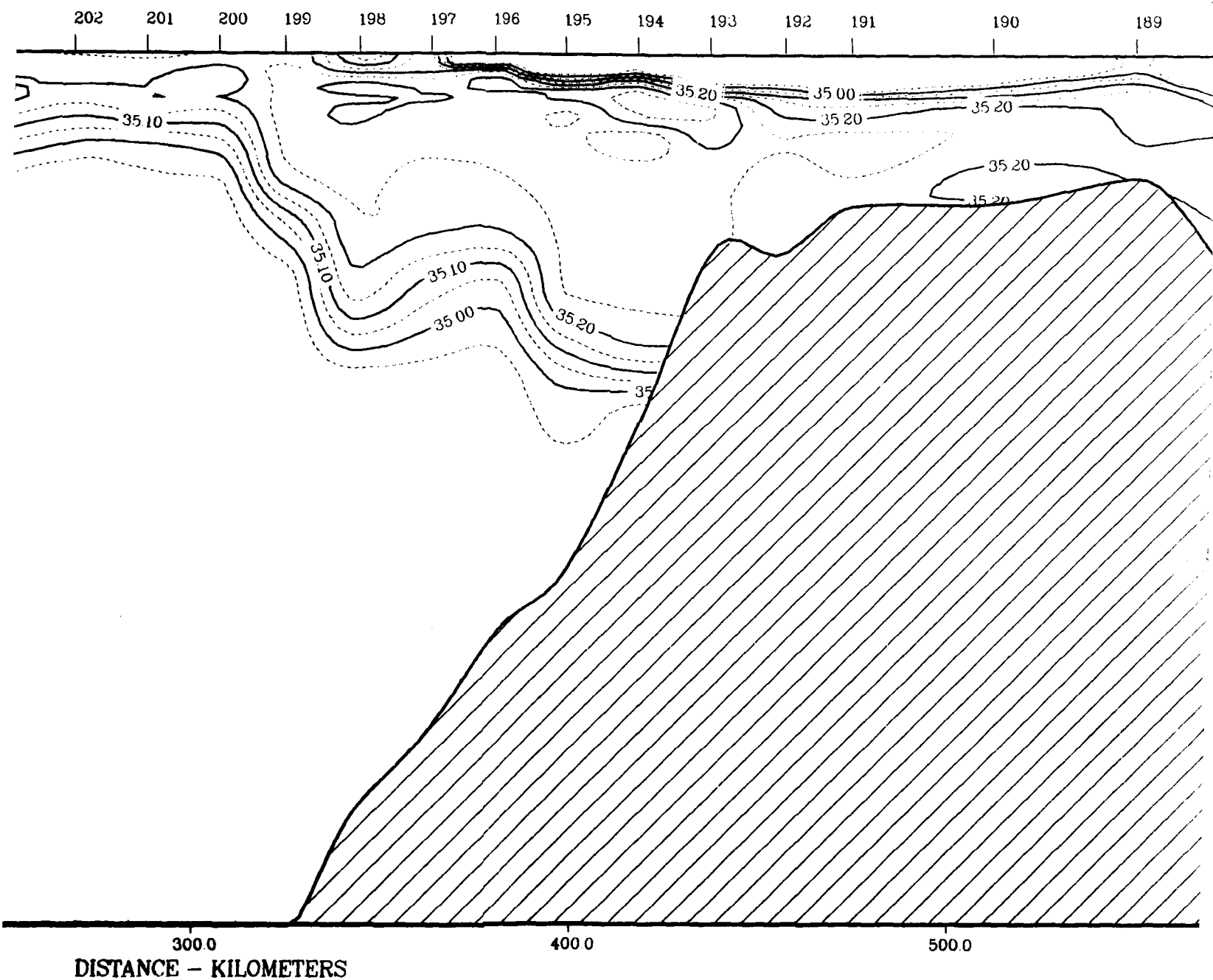
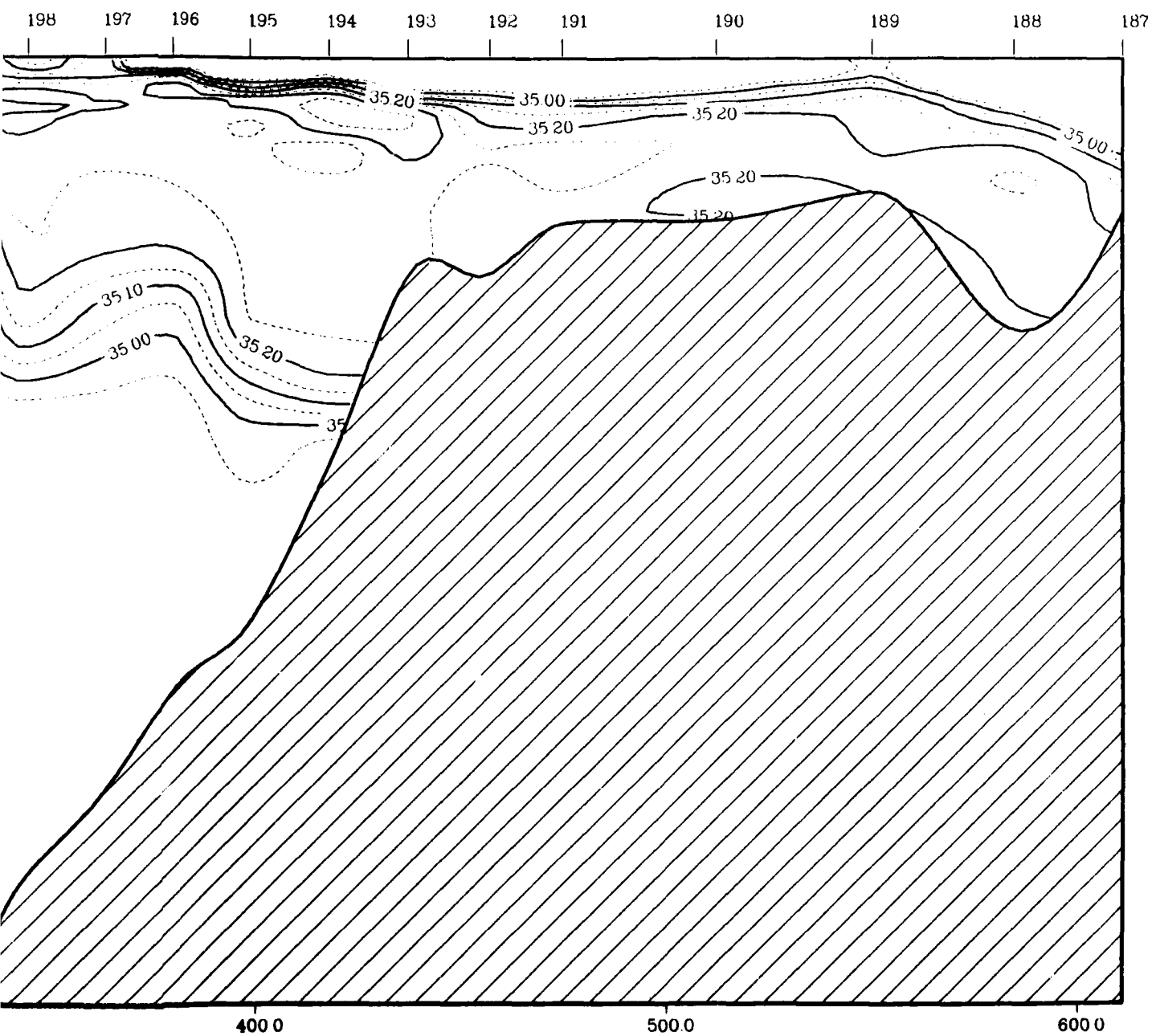


Figure 120. June 1936 (data set #7) salinity section.

SOGNEFJORD SECTION

FILE = ICES\$19J6D7.DAT:1
SALINITY





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ICES\$:1936E8.DAT

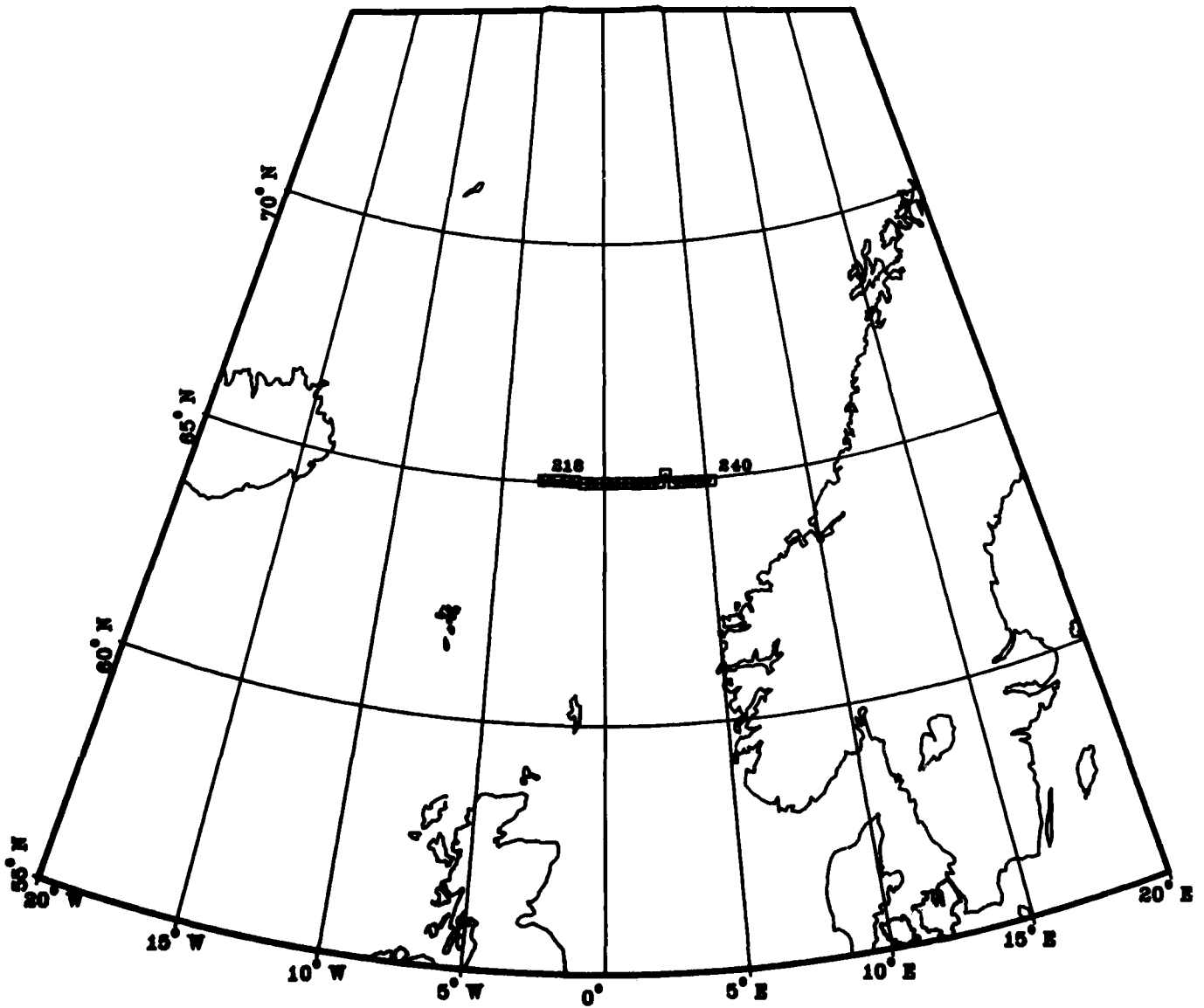


Figure 121. June 1936 (data set #8) station positions.

SOGNEFJORD SECTION
FILE = ICES\$ 1936E8 DAT
T/S PLOT

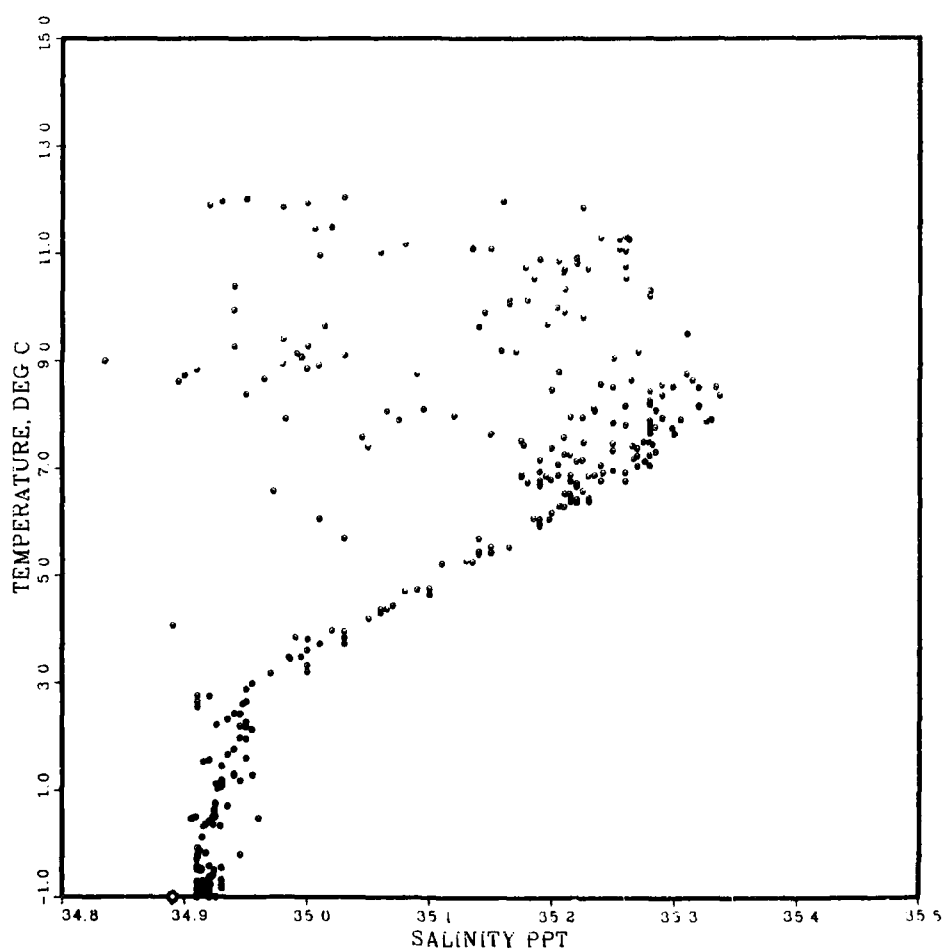


Figure 122. July 1936 (data set #8) temperature/salinity diagram.

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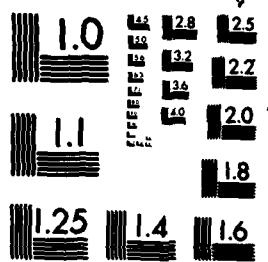
ATLAS OF SOGNET JORD SECTIONS 1960-1970 (U) NAVAL OCEAN
RESEARCH AND DEVELOPMENT ACTIVITY NSL STATION NS
K D SAUNDERS ET AL. APR 85 NORDA-42

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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

SOGN
FIL

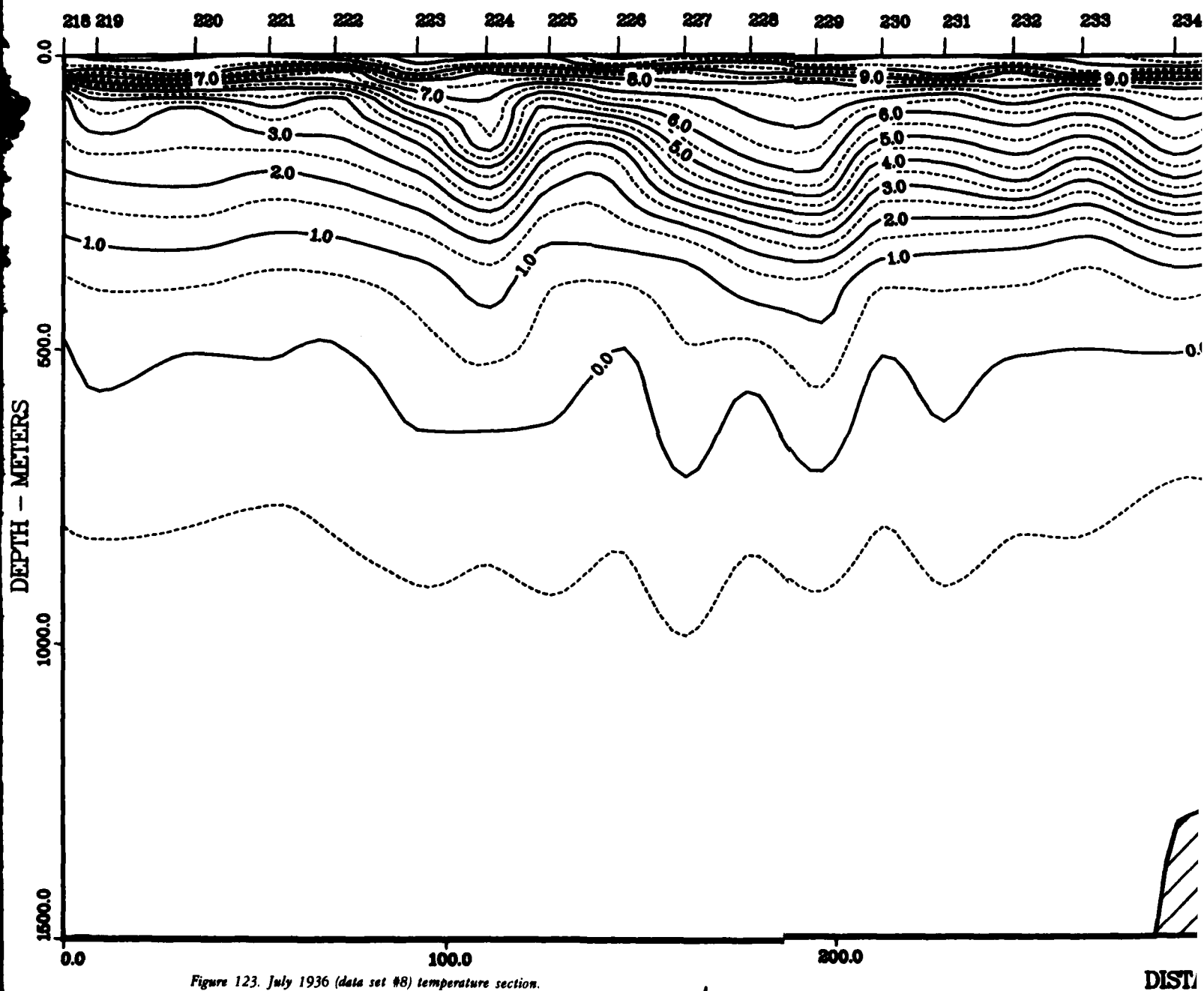
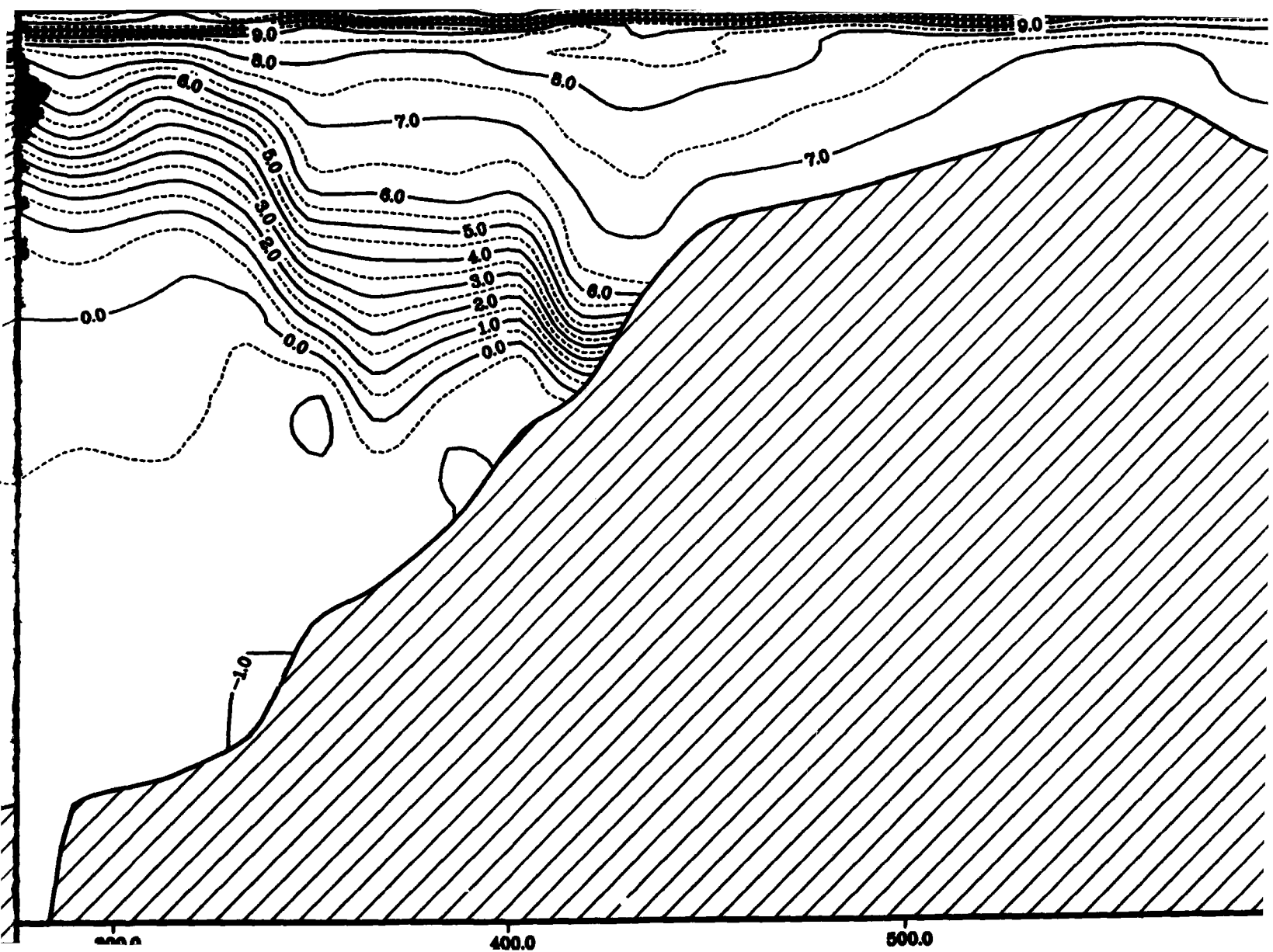
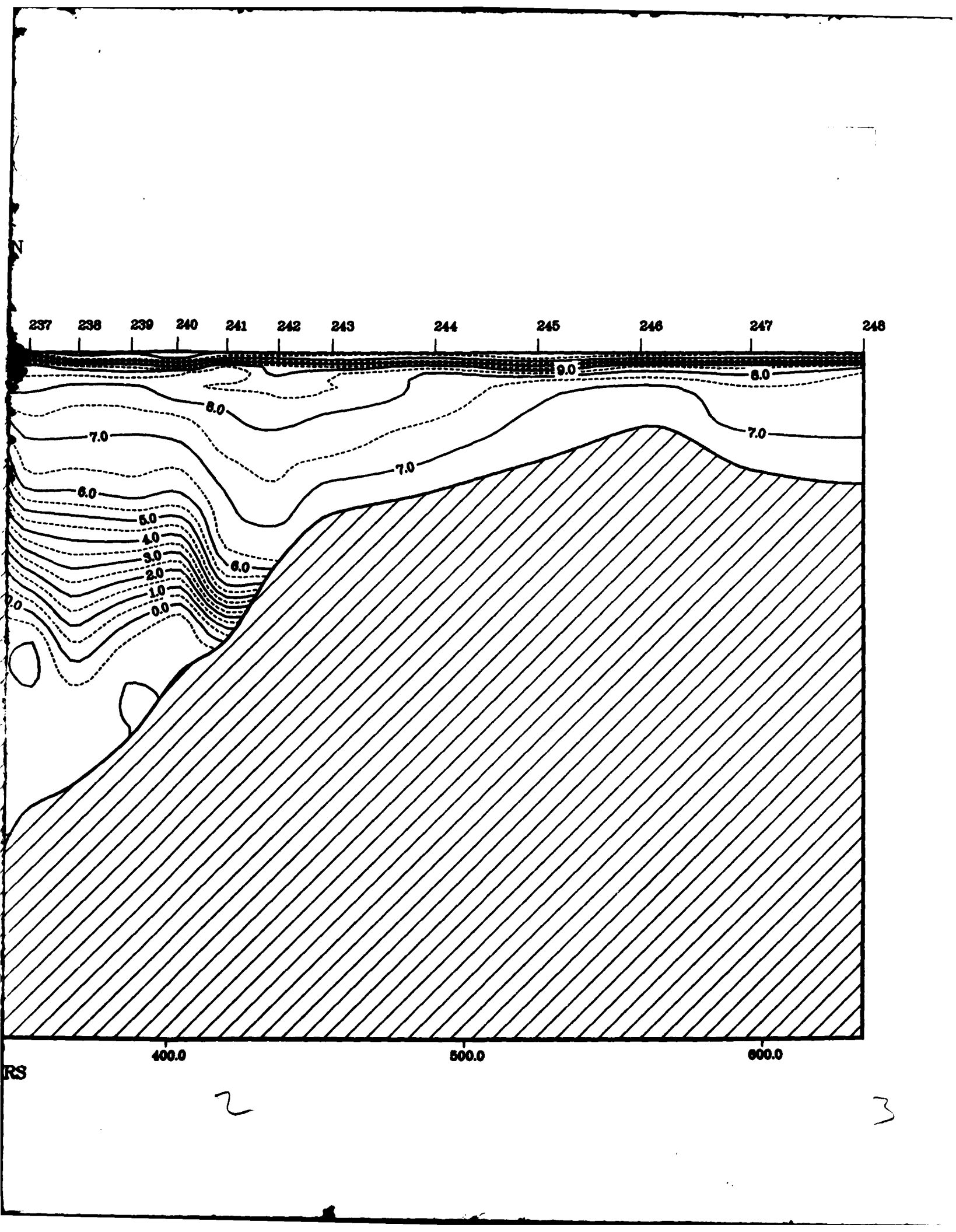


Figure 123. July 1936 (data set #8) temperature section.





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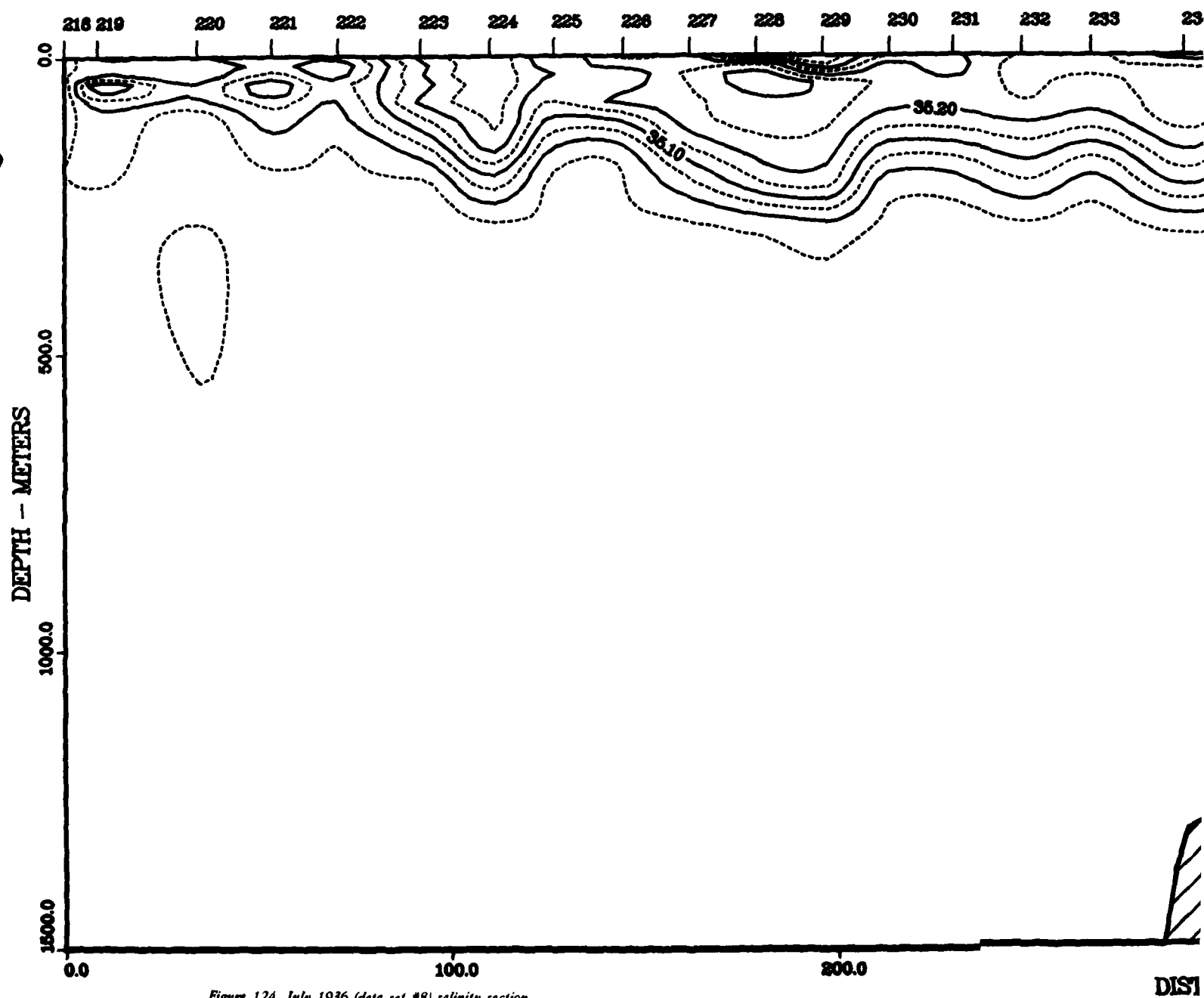
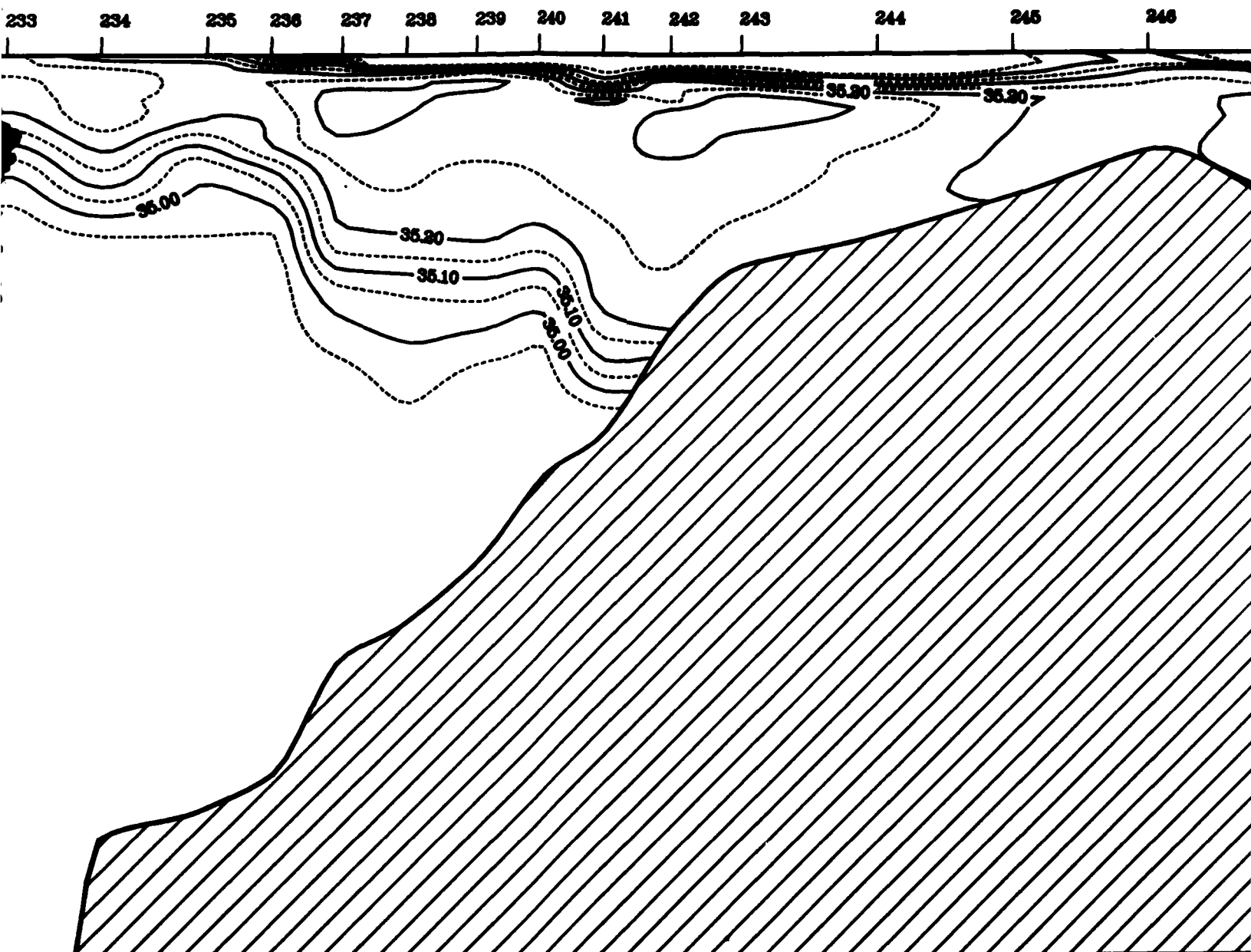
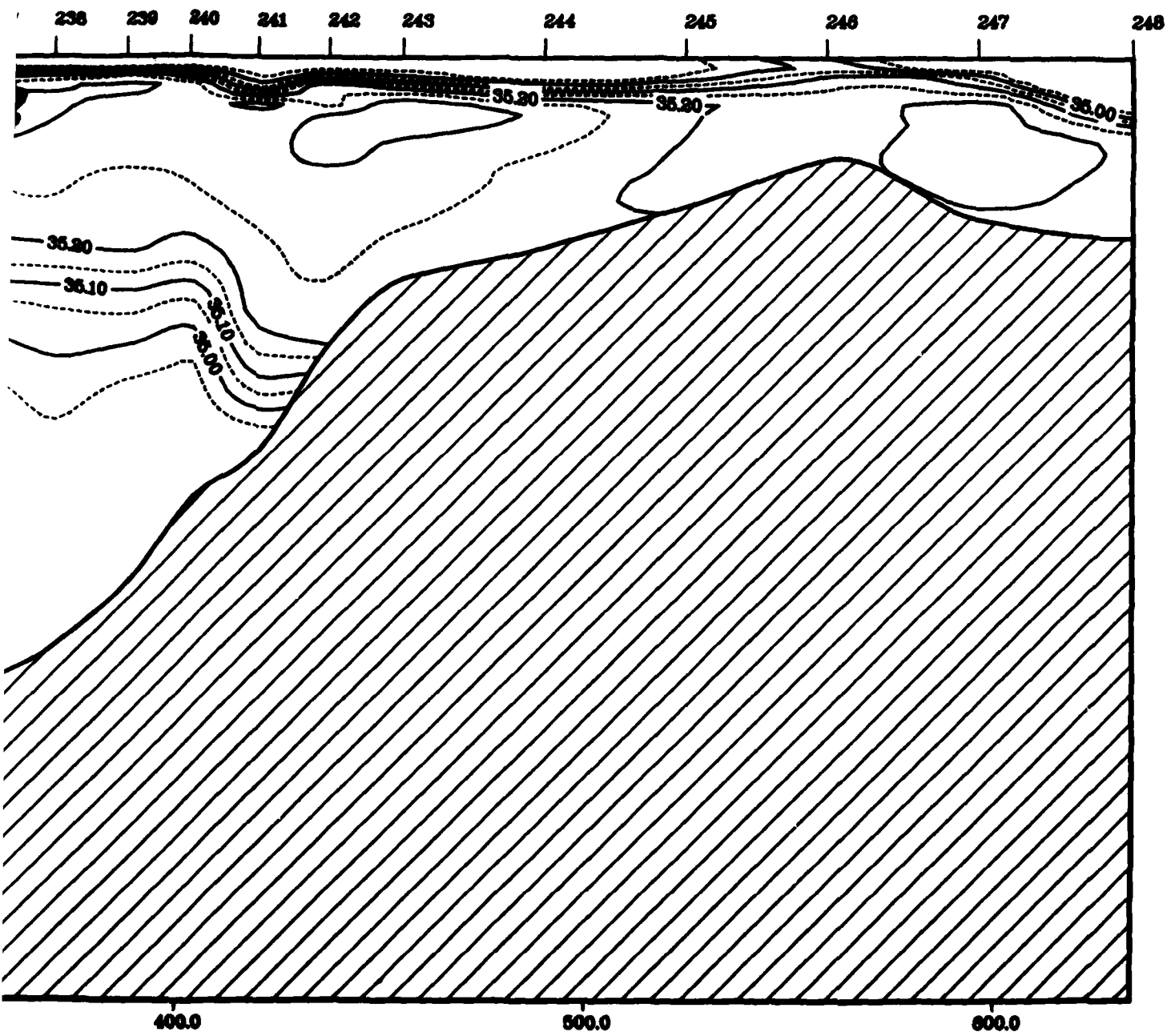


Figure 124. July 1936 (data set #8) salinity section.

SOGNEFJORD SECTION
FILE - KCS81936ES.DAT
SALINITY





2

3

ICES\$:1936D9.DAT

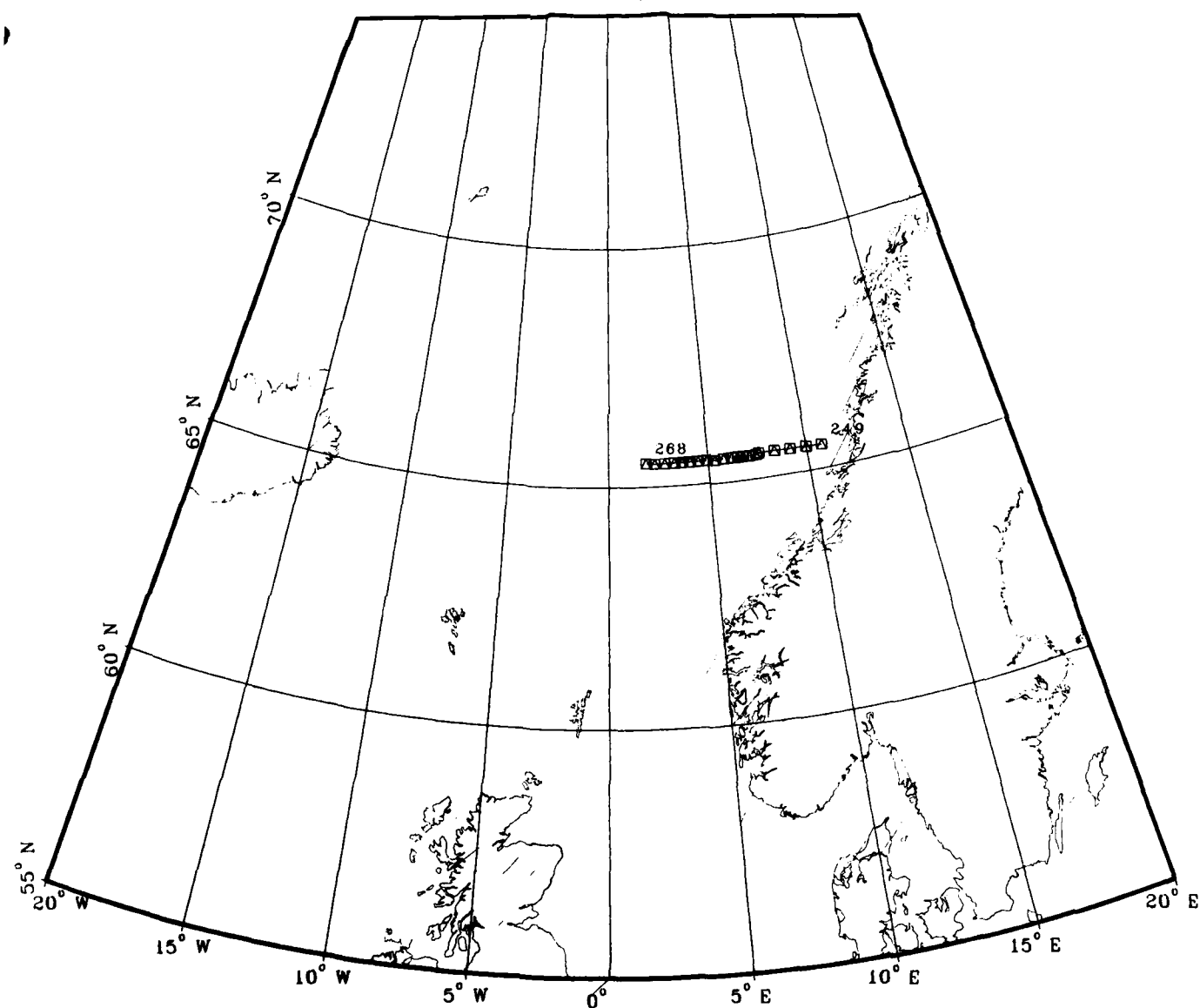


Figure 125. July 1936 (data set #9) station positions.

SOGNEFJORD SECTION
FILE = ICES\$1936D9.DAT
T/S PLOT

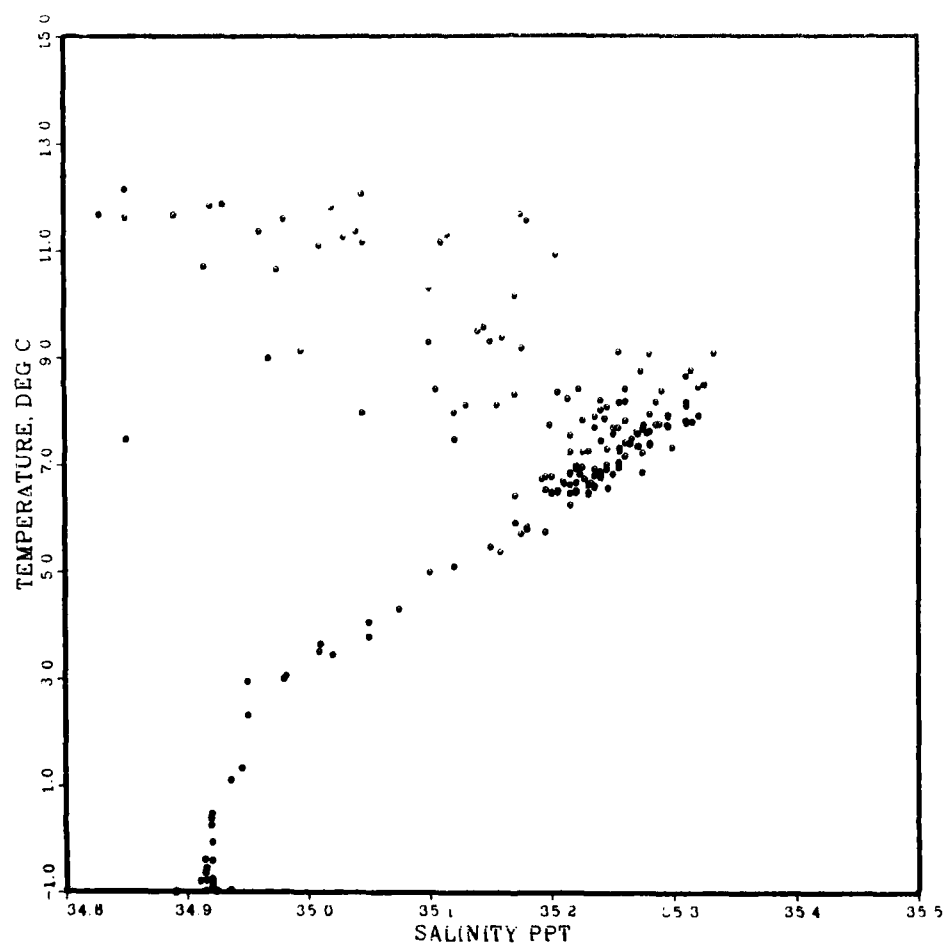


Figure 126. July 1936 (data set #9) temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$1936D9.DAT:1
 TEMPERATURE

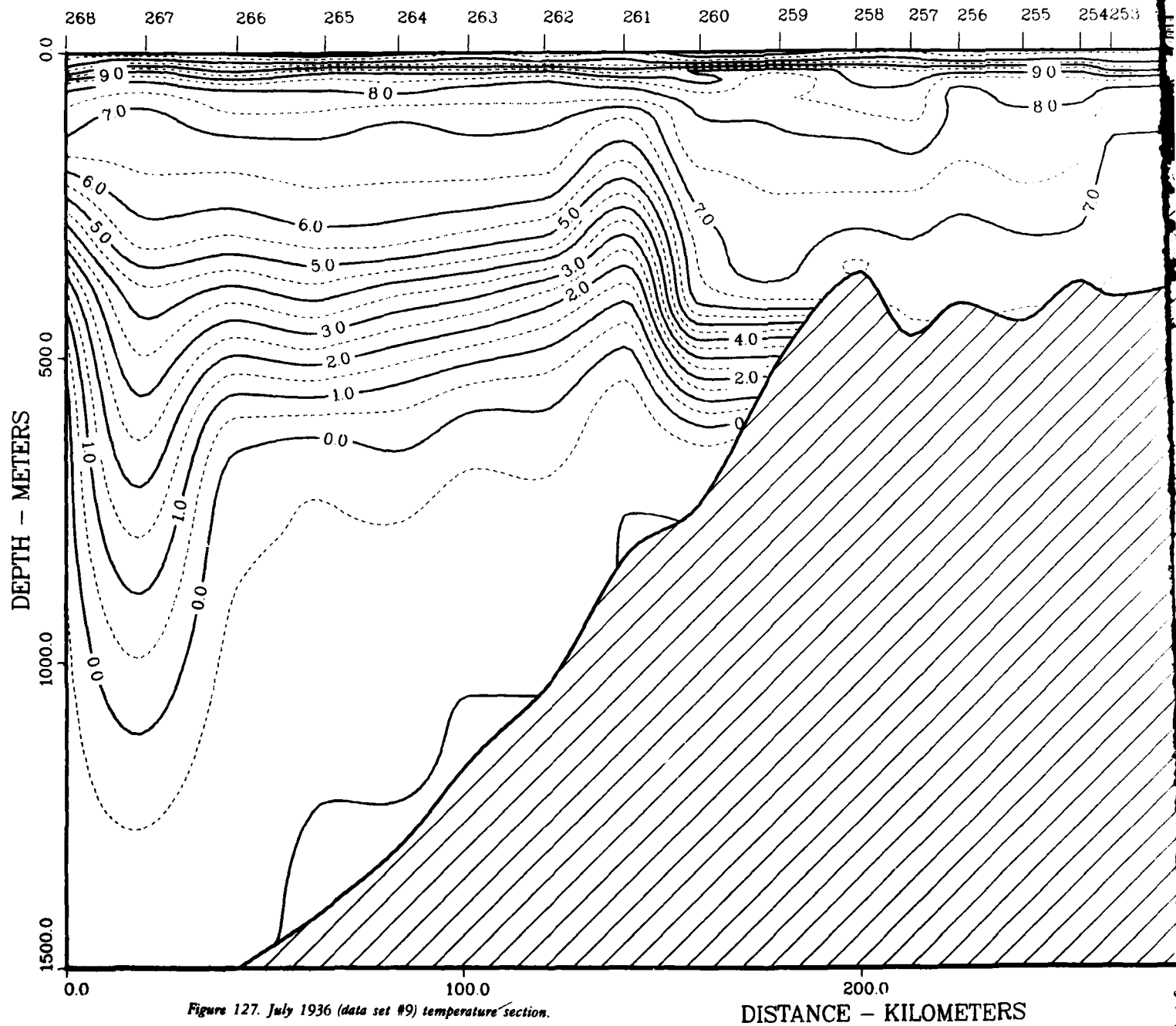
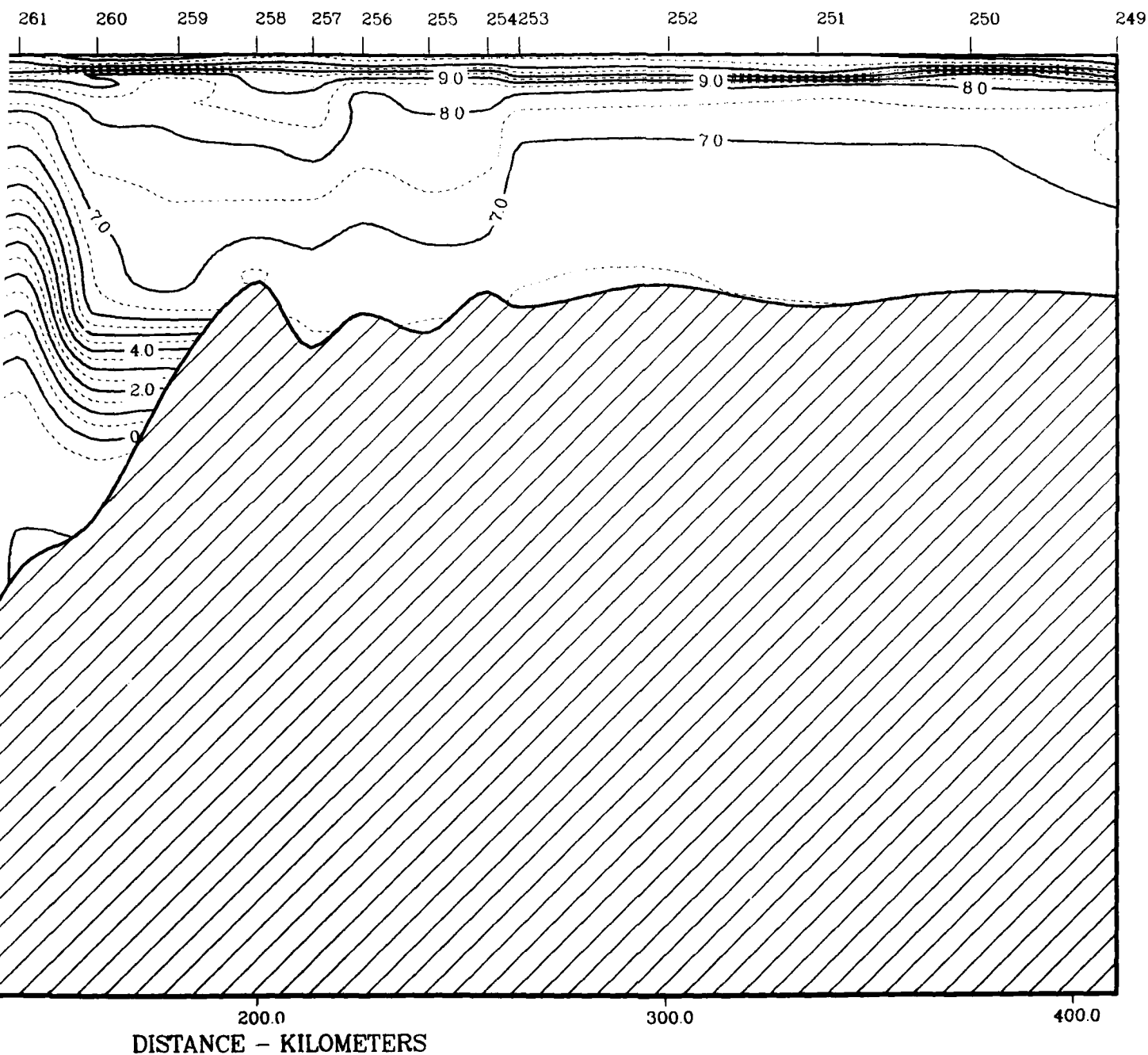


Figure 127. July 1936 (data set #9) temperature section.

SOGNEFJORD SECTION
FILE = ICES\$1936D9 DAT:1
TEMPERATURE



SOGNEFJORD SECTION
 FILE = ICES\$1936D9.DAT1
 SALINITY

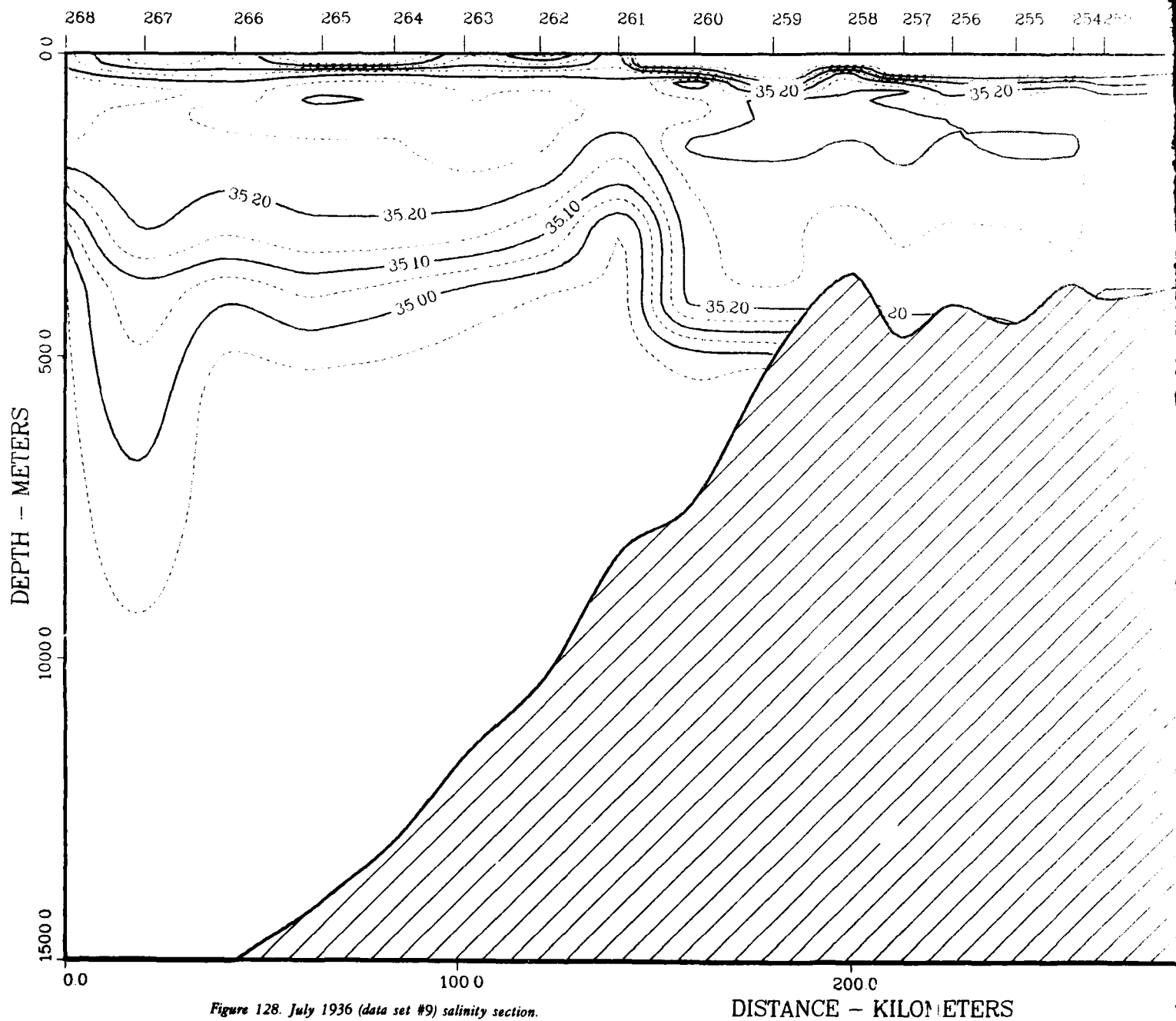


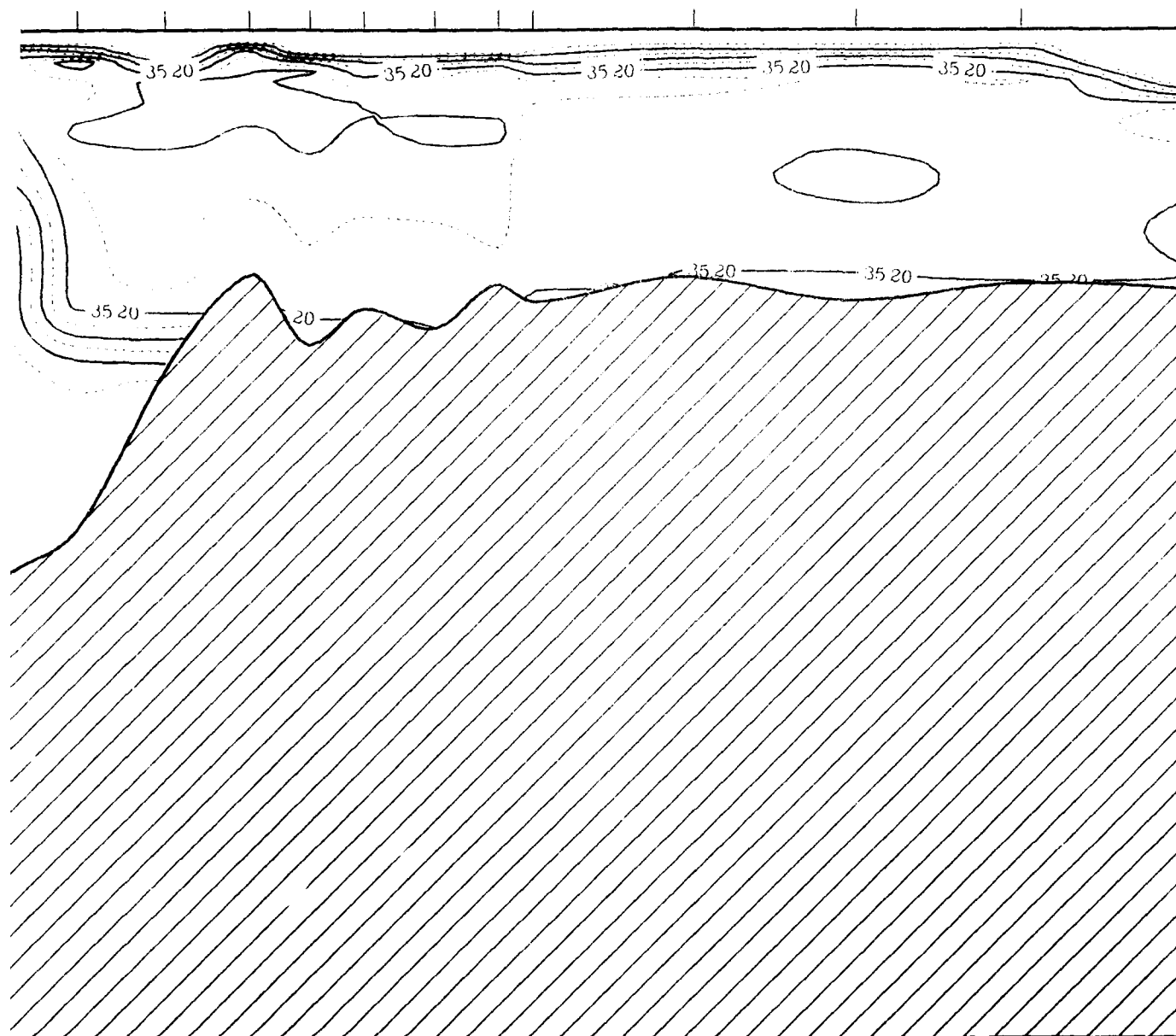
Figure 128. July 1936 (data set #9) salinity section.

SOGNEFJORD SECTION

FILE = ICES 1936D9 DAT 1

SALINITY

260 259 258 257 256 255 254 253 252 251 250 249



DISTANCE - KILOMETERS

2

ICES\$.1947MAY.DAT

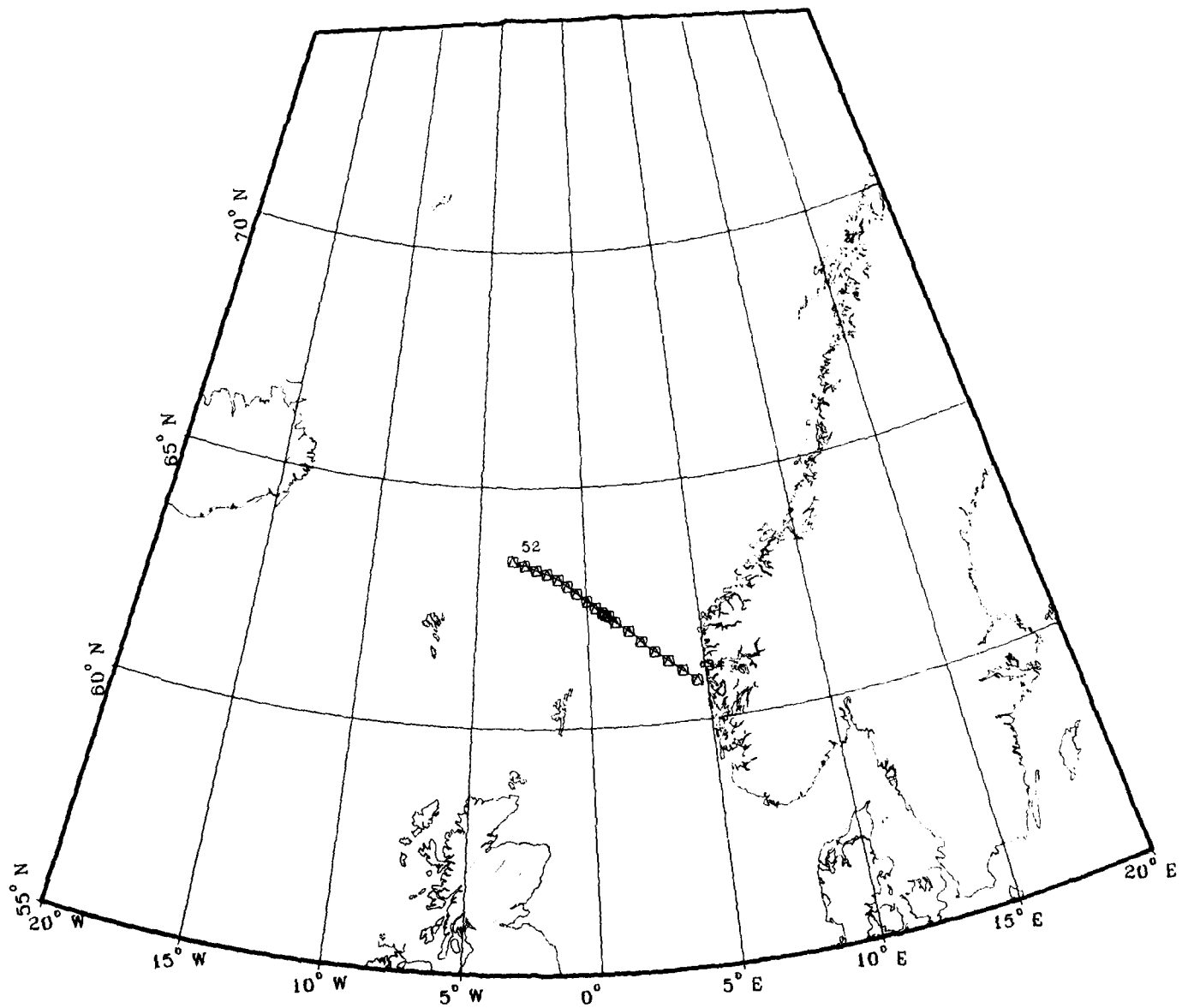


Figure 129. May 1947 station positions.

SOGNEFJORD SECTION
FILE = ICES\$ 1947MAY.DAT
T/S PLOT

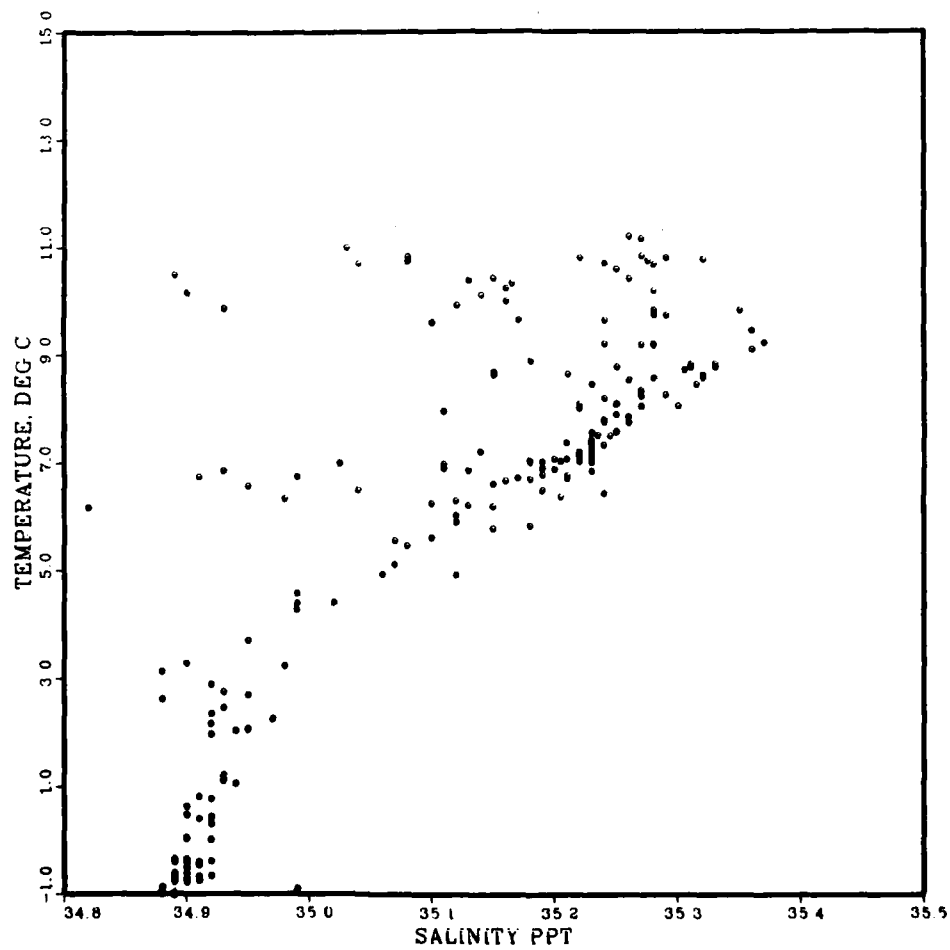


Figure 130. May 1947 temperature/salinity diagram.

SOGNEFJORD SECTION
FILE - ICES 1947 MAY DAT 1
TEMPERATURE

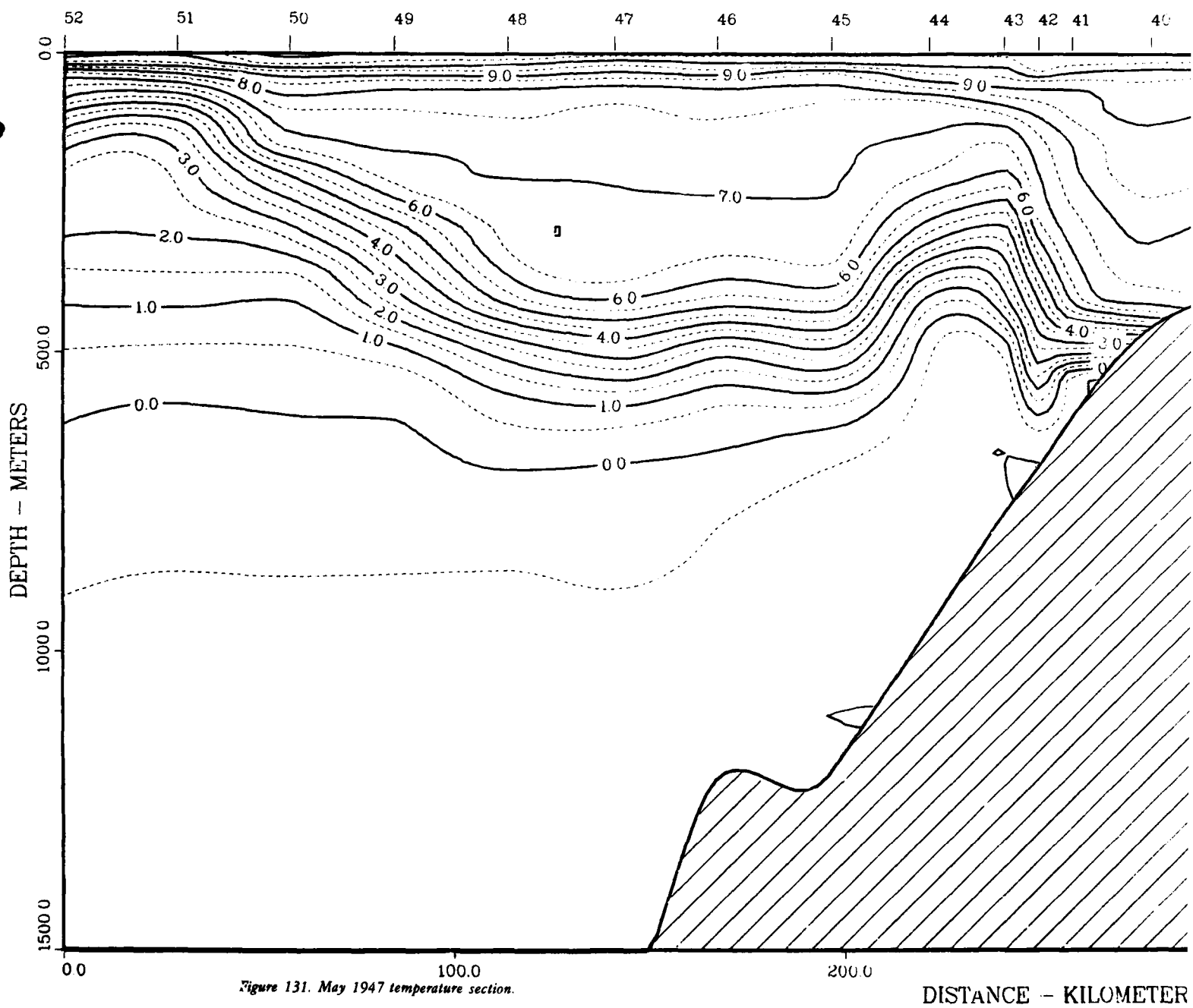
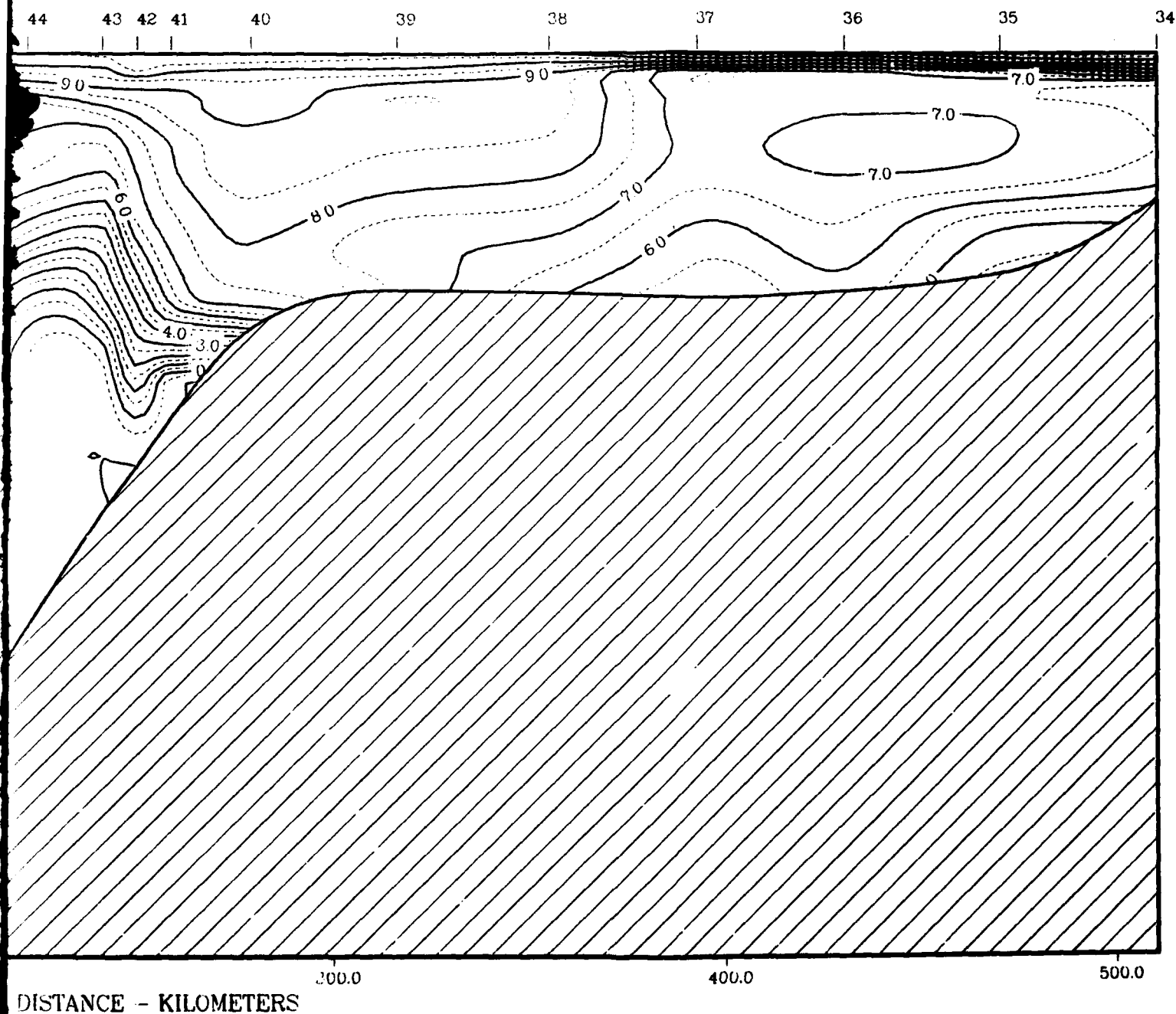


Figure 131. May 1947 temperature section.

SOGNEFJORD SECTION

FILE = ICES\$1947MAY.DAT;1
TEMPERATURE



2

SOGNEFJORD SECTION
FILE = ICES 1947 MAY DATA
SALINITY

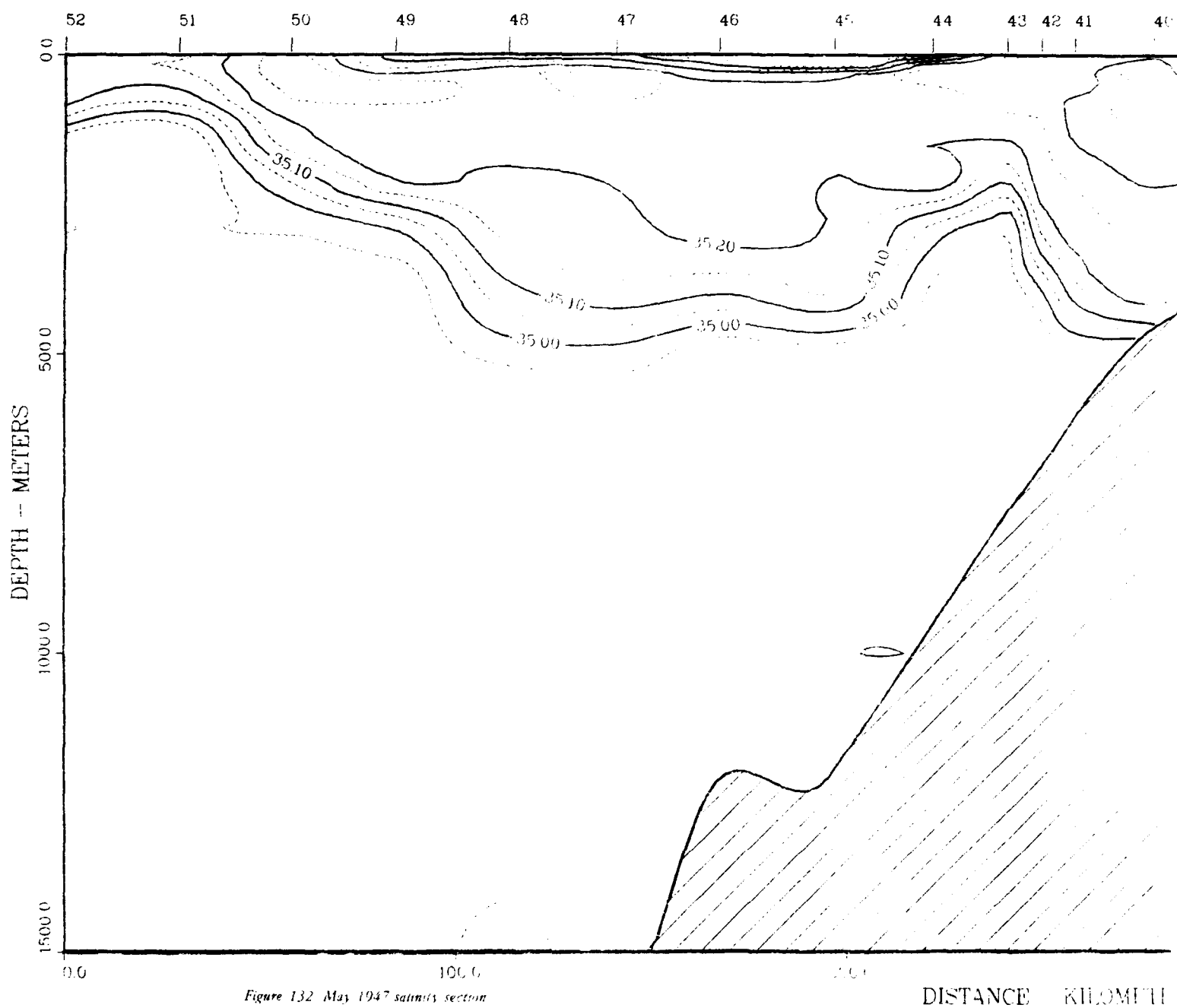
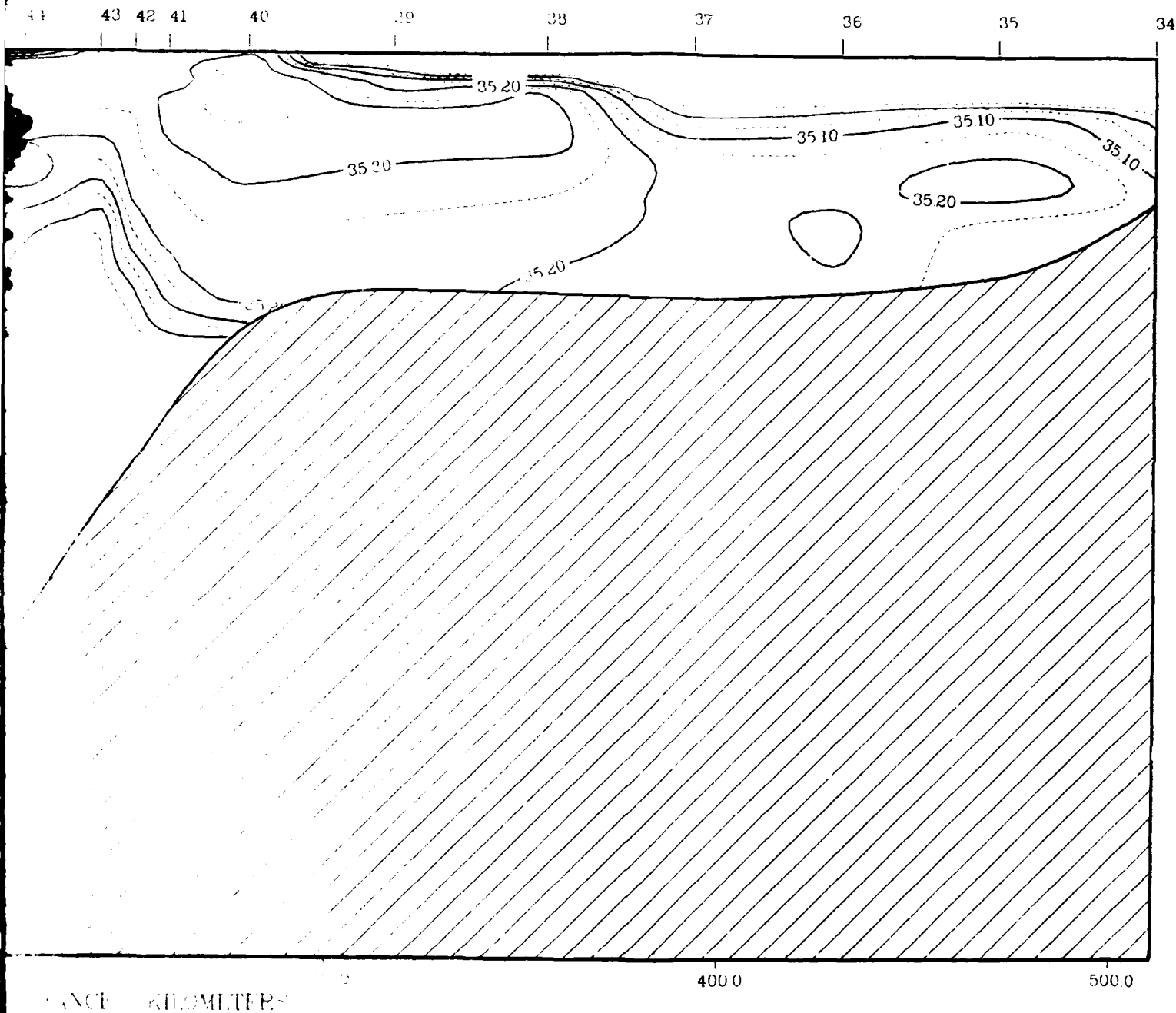


Figure 132 May 1947 salinity section

SOGNEFJORD SECTION
FILE = ICES 1947 MAY DAT.1
SALINITY



ICES\$:1947AUG.DAT

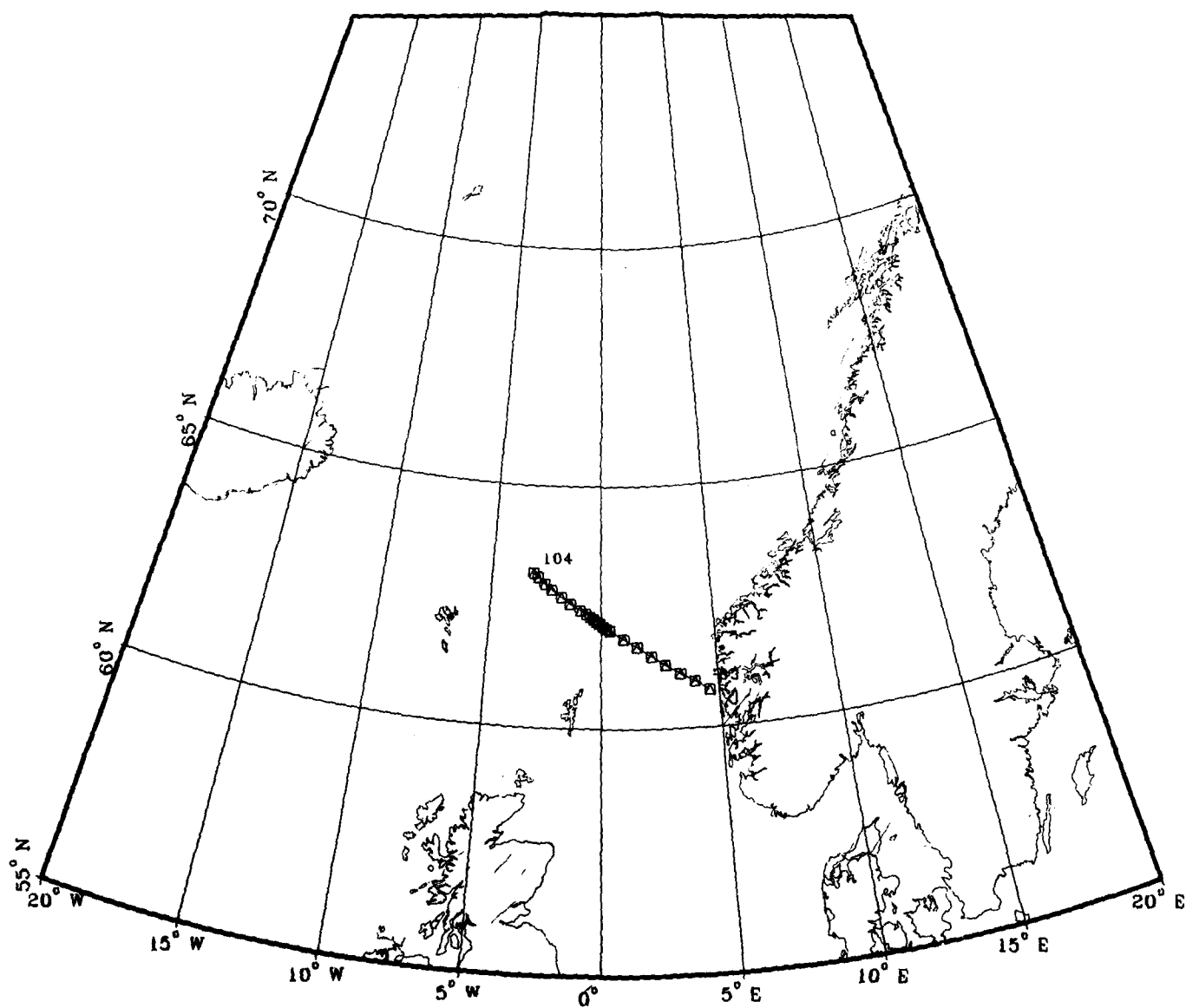


Figure 133. August 1947 station positions

SOGNEFJORD SECTION
FILE = ICES\$1947AUG.DAT
T/S PLOT

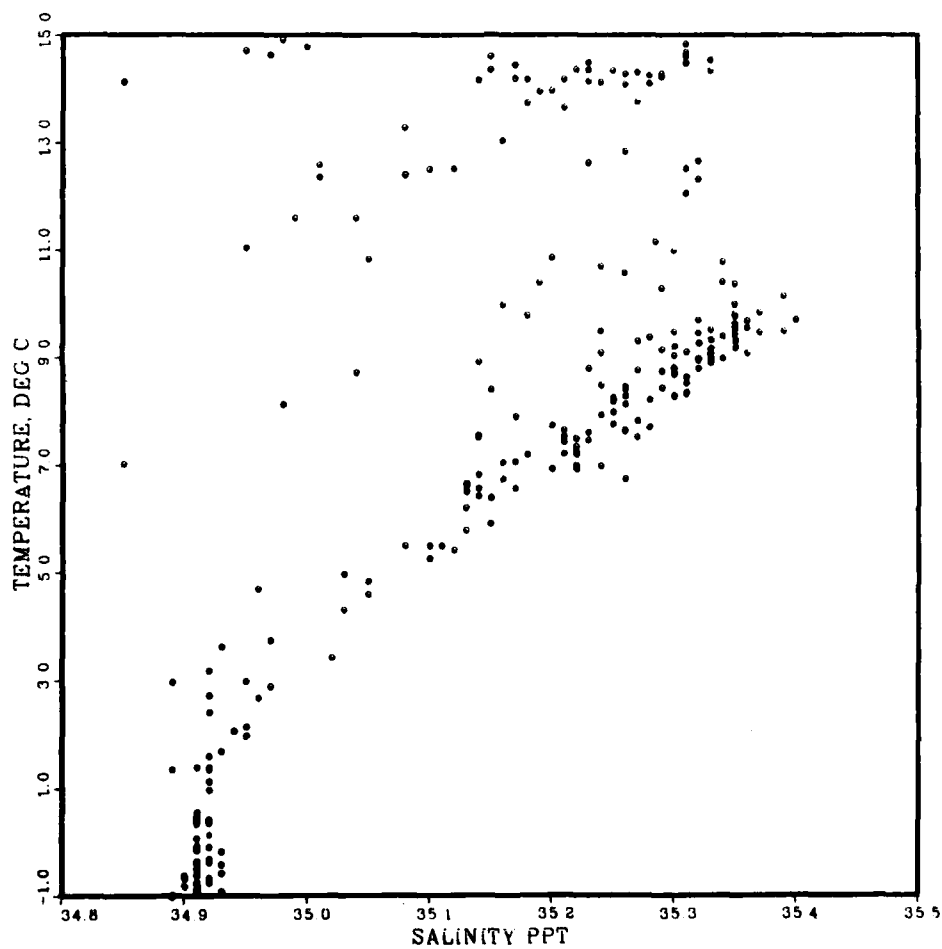


Figure 134. August 1947 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES 1947 AUG DAT 1
 TEMPERATURE

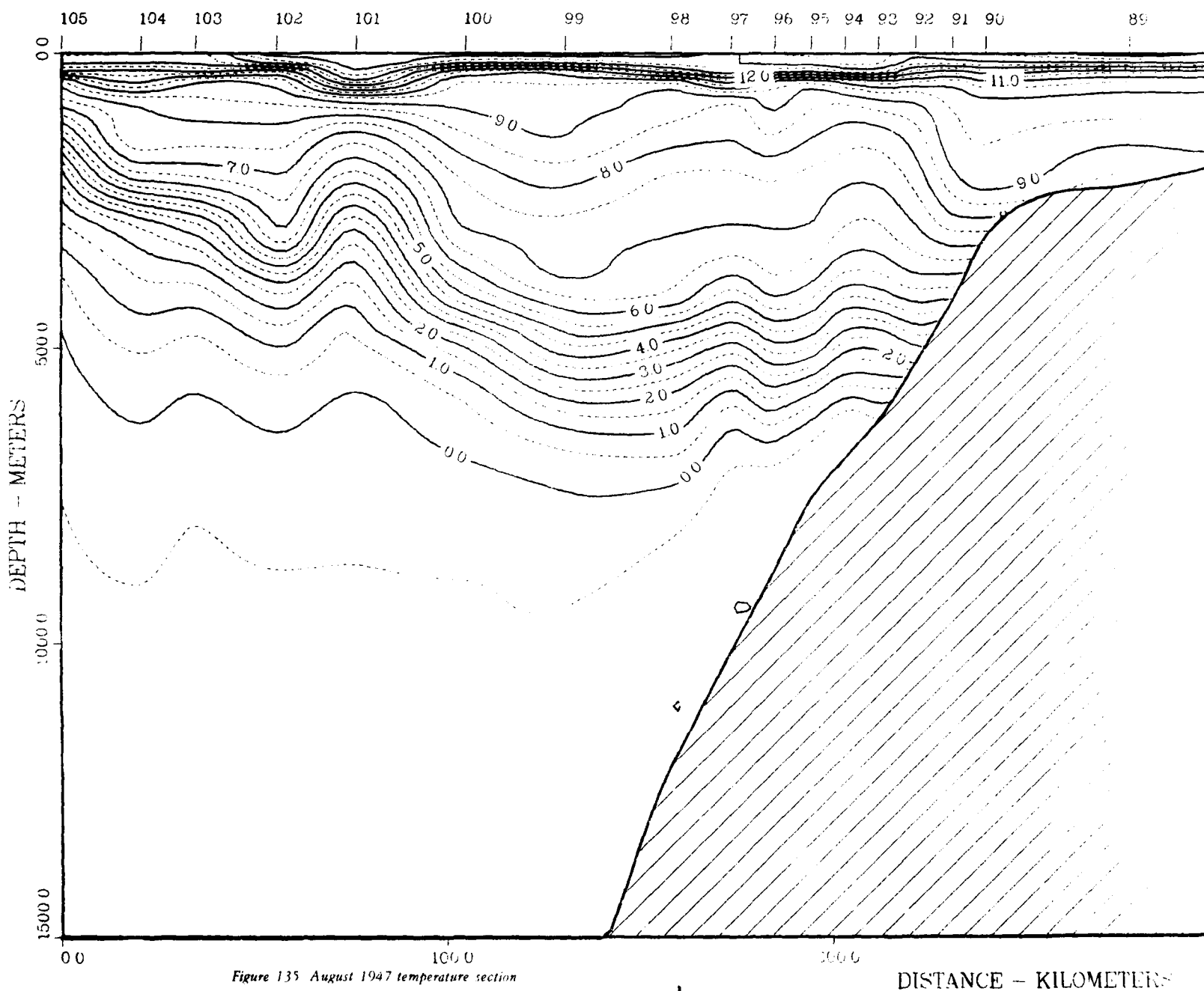
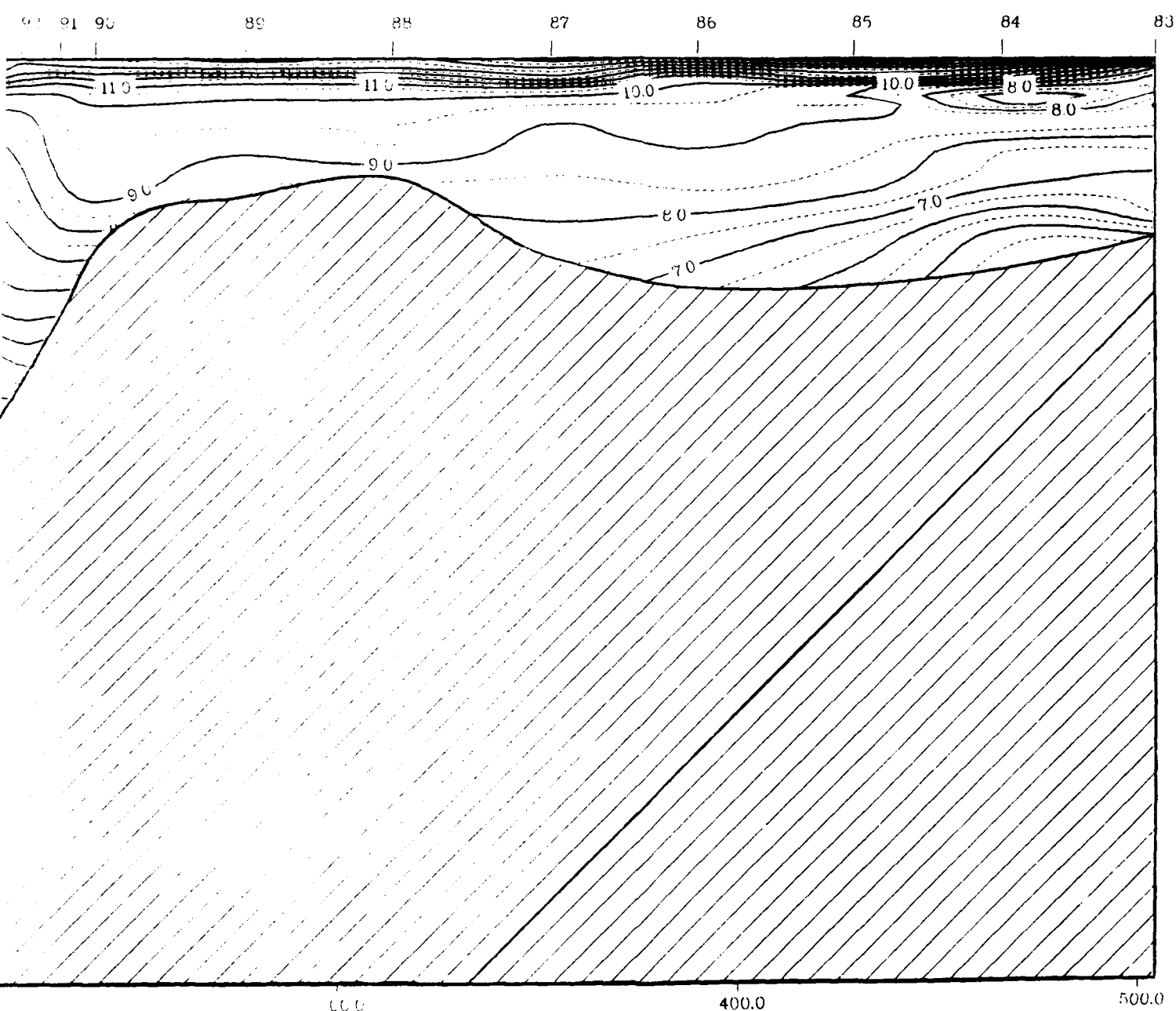


Figure 135 August 1947 temperature section

SOGNEFJORD SECTION
FILE = ICES 1947 AUG DAT 1
TEMPERATURE



DISTANCE - KILOMETERS

/

2

SOGNEFJORD SECTION
FILE - ICES-1947AUG.DAT1
SALINITY

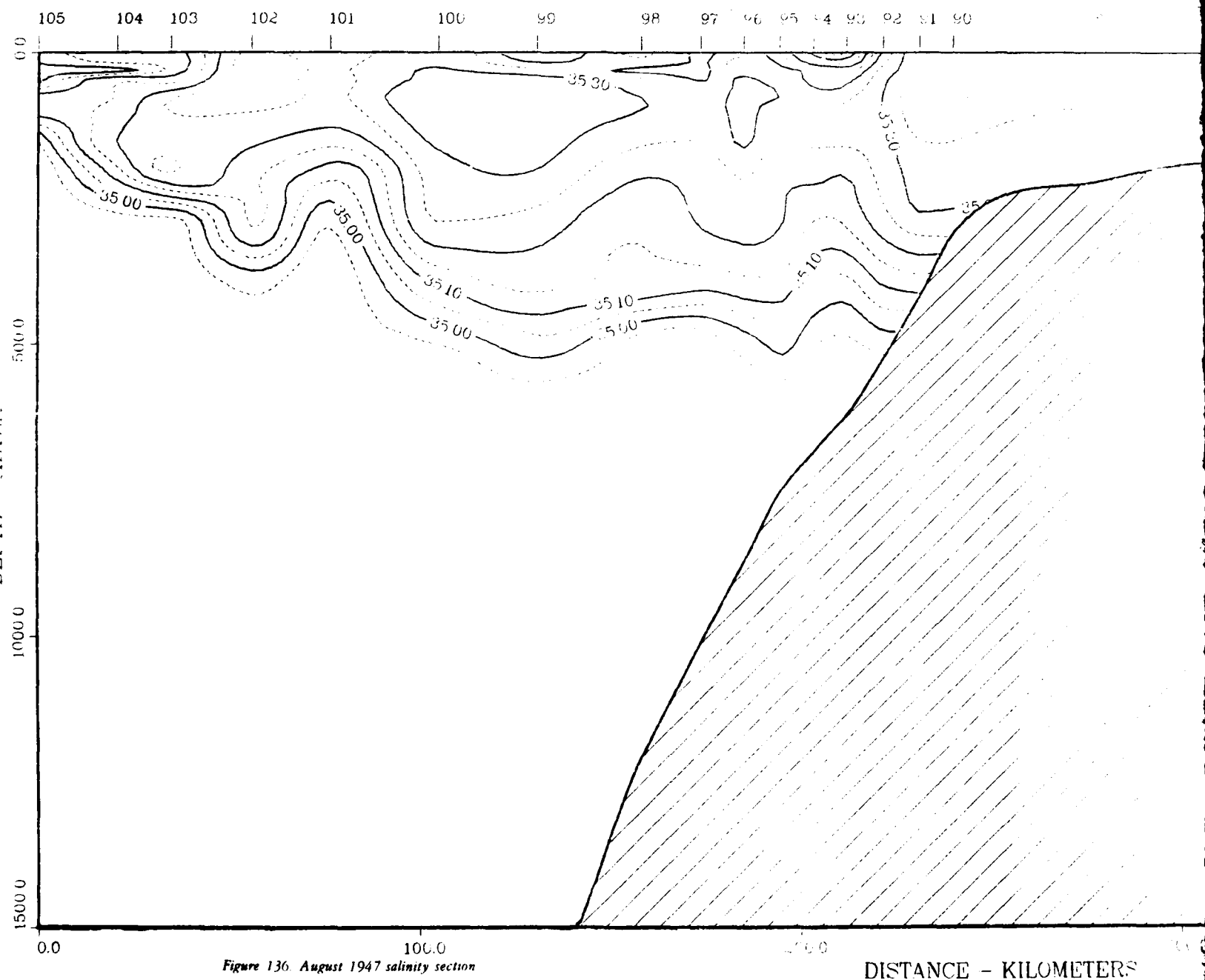
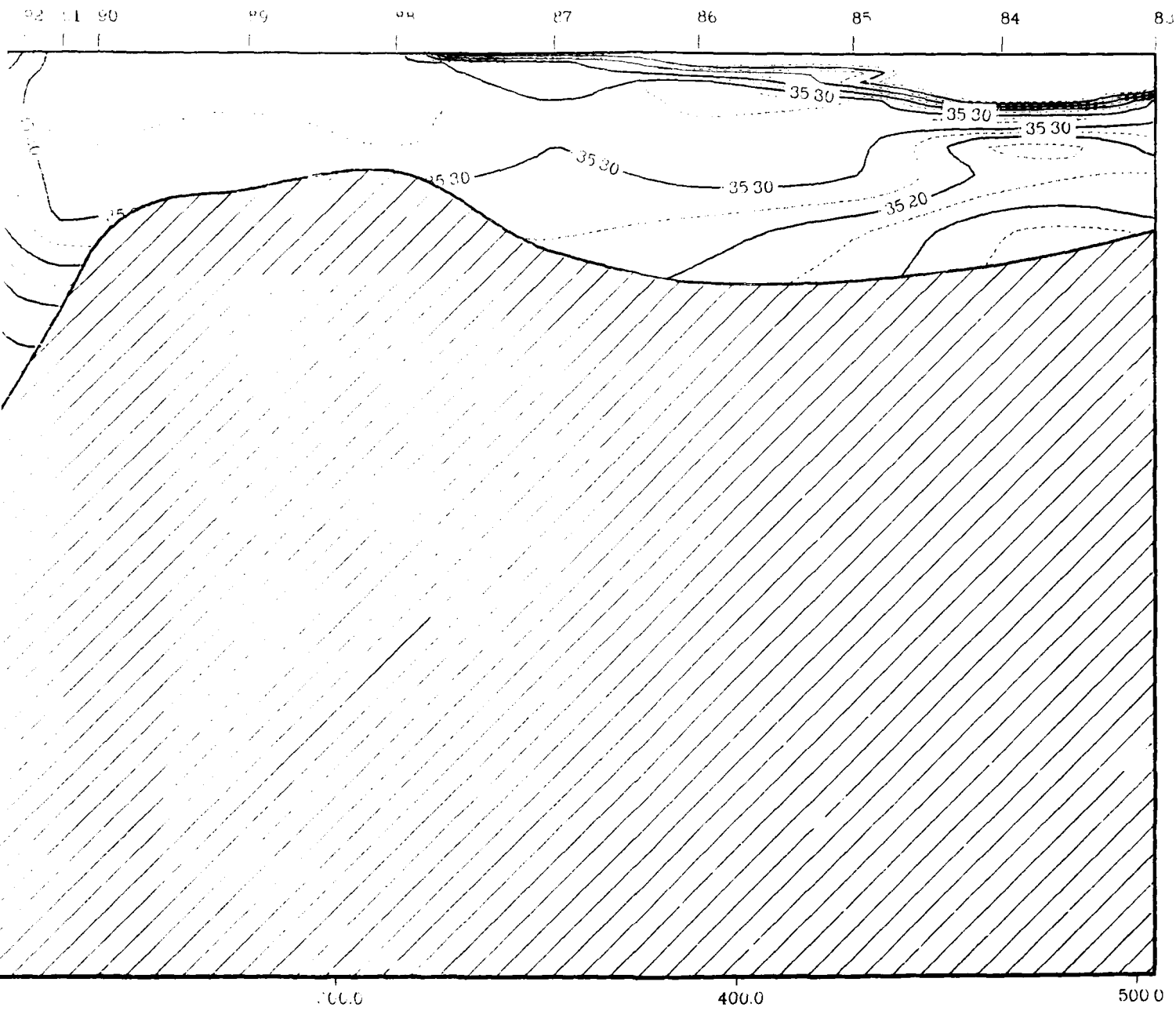


Figure 136. August 1947 salinity section

SOGNEFJORD SECTION
FILE - ICE-11947 AUG DAT 1
SALINITY



DISTANCE - KILOMETERS

ICES\$:1948MAY.DAT

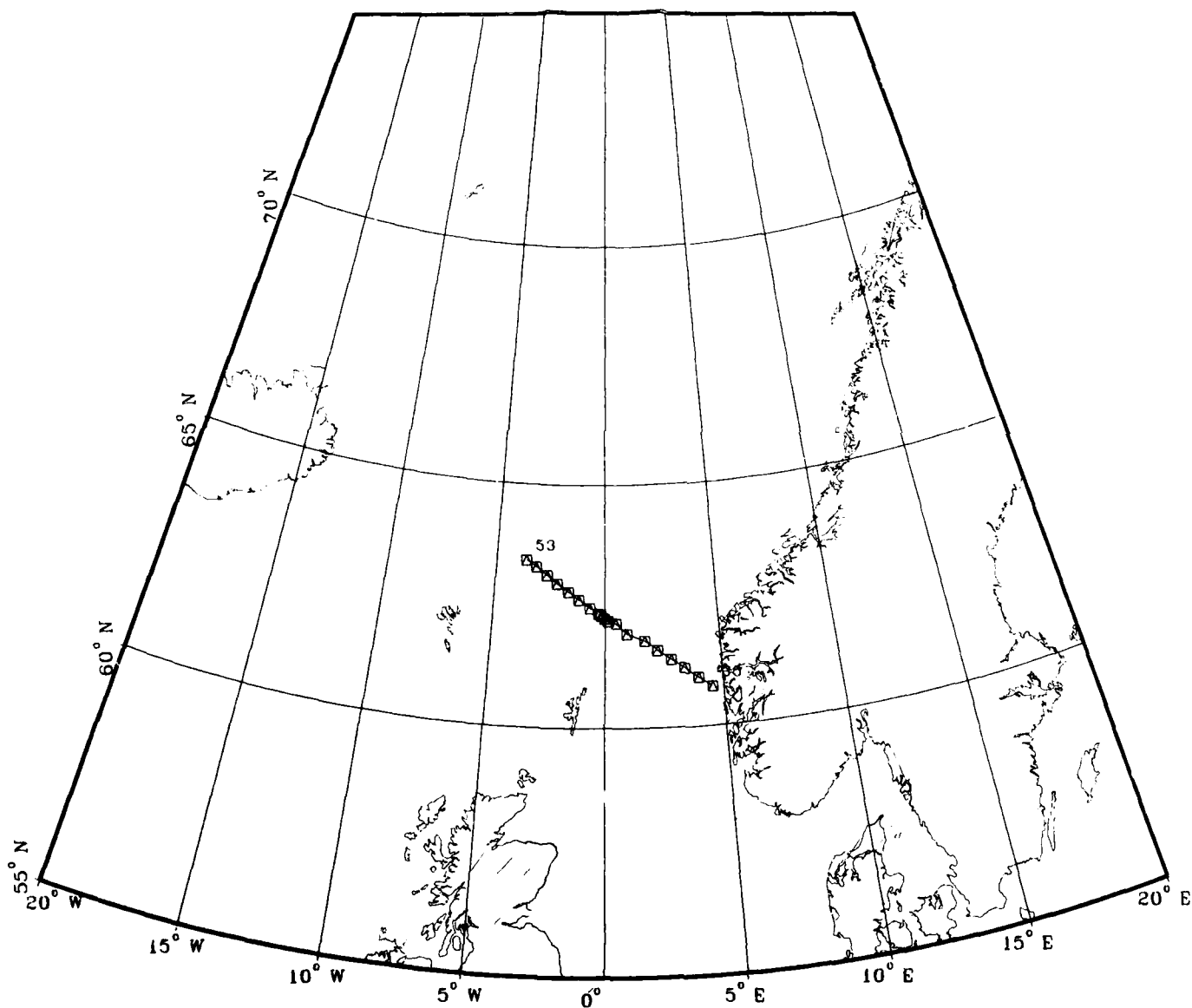


Figure 137. May 1948 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1948MAY.DAT
T/S PLOT

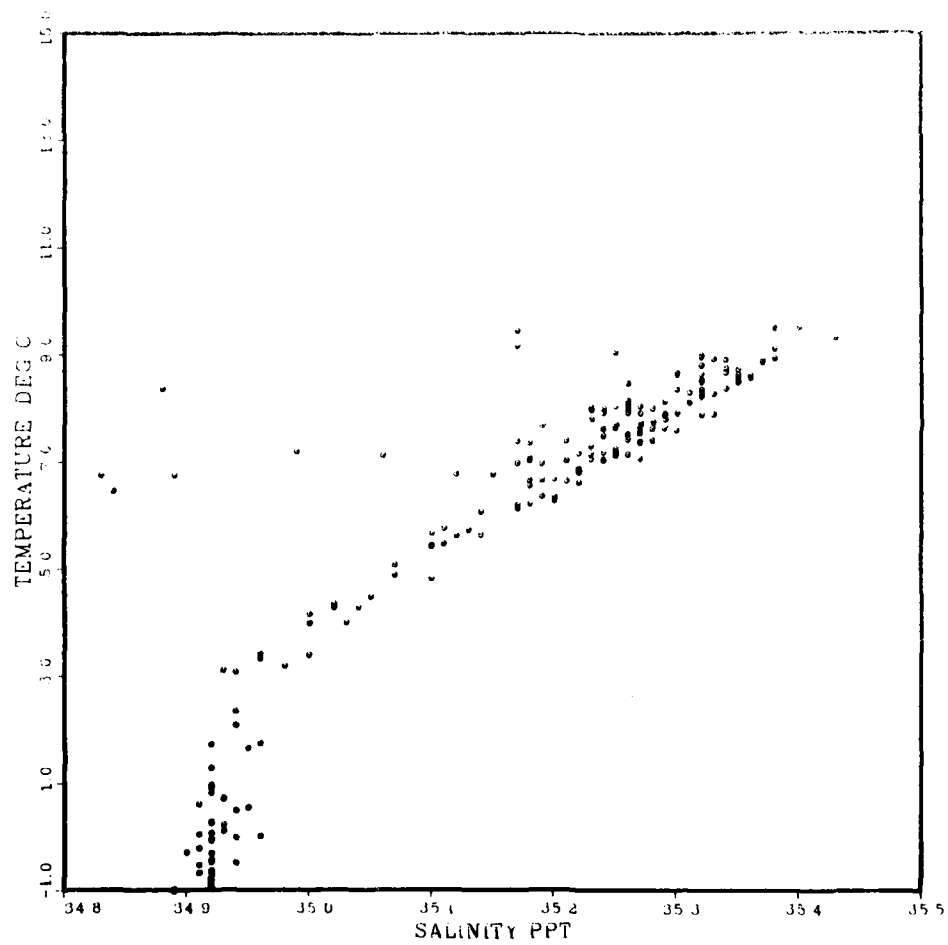


Figure 138. May 1948 temperature/salinity diagram.

SOGNEFJORD SE
FILE = ICES 1948MA
TEMPERATURE

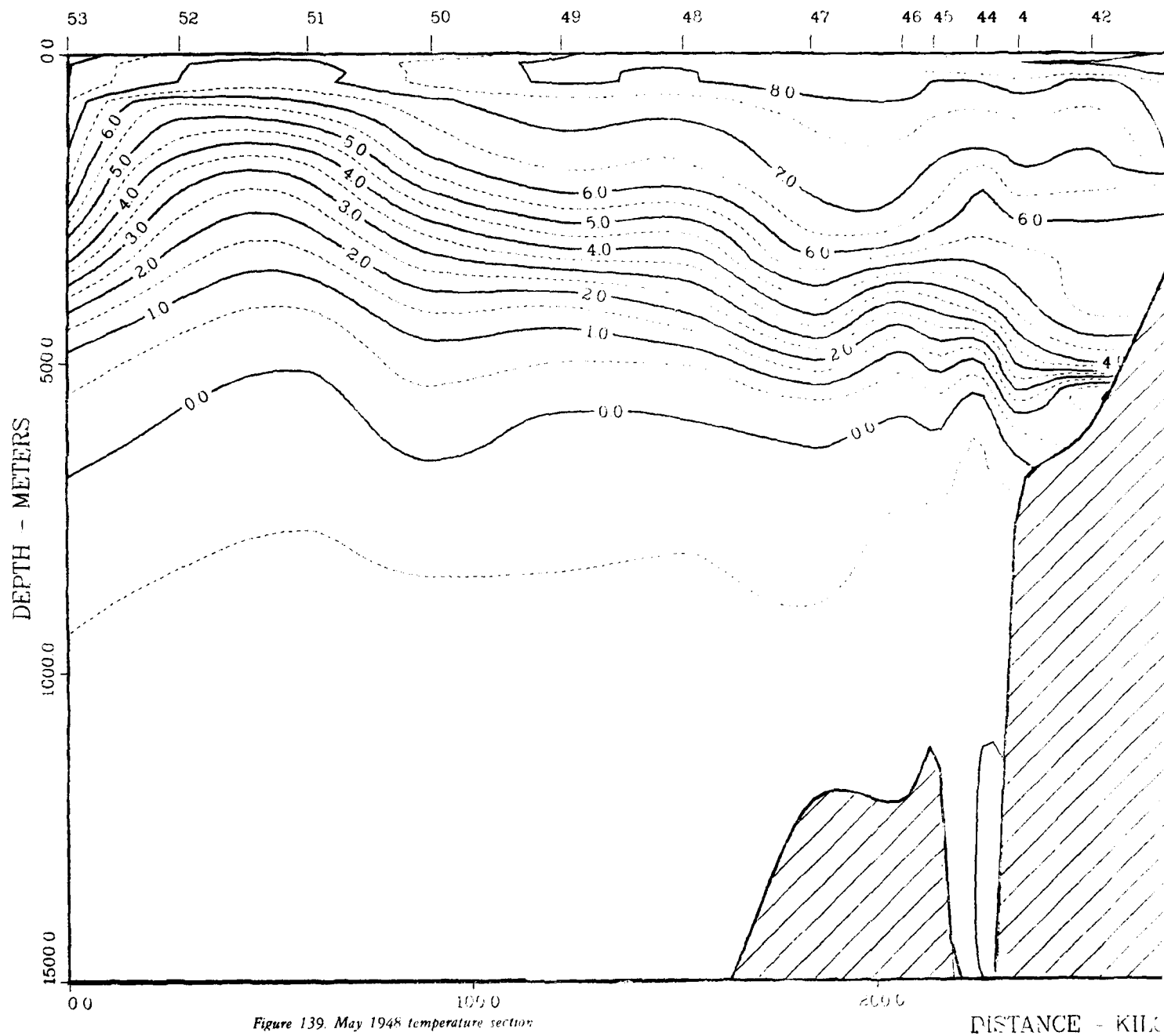
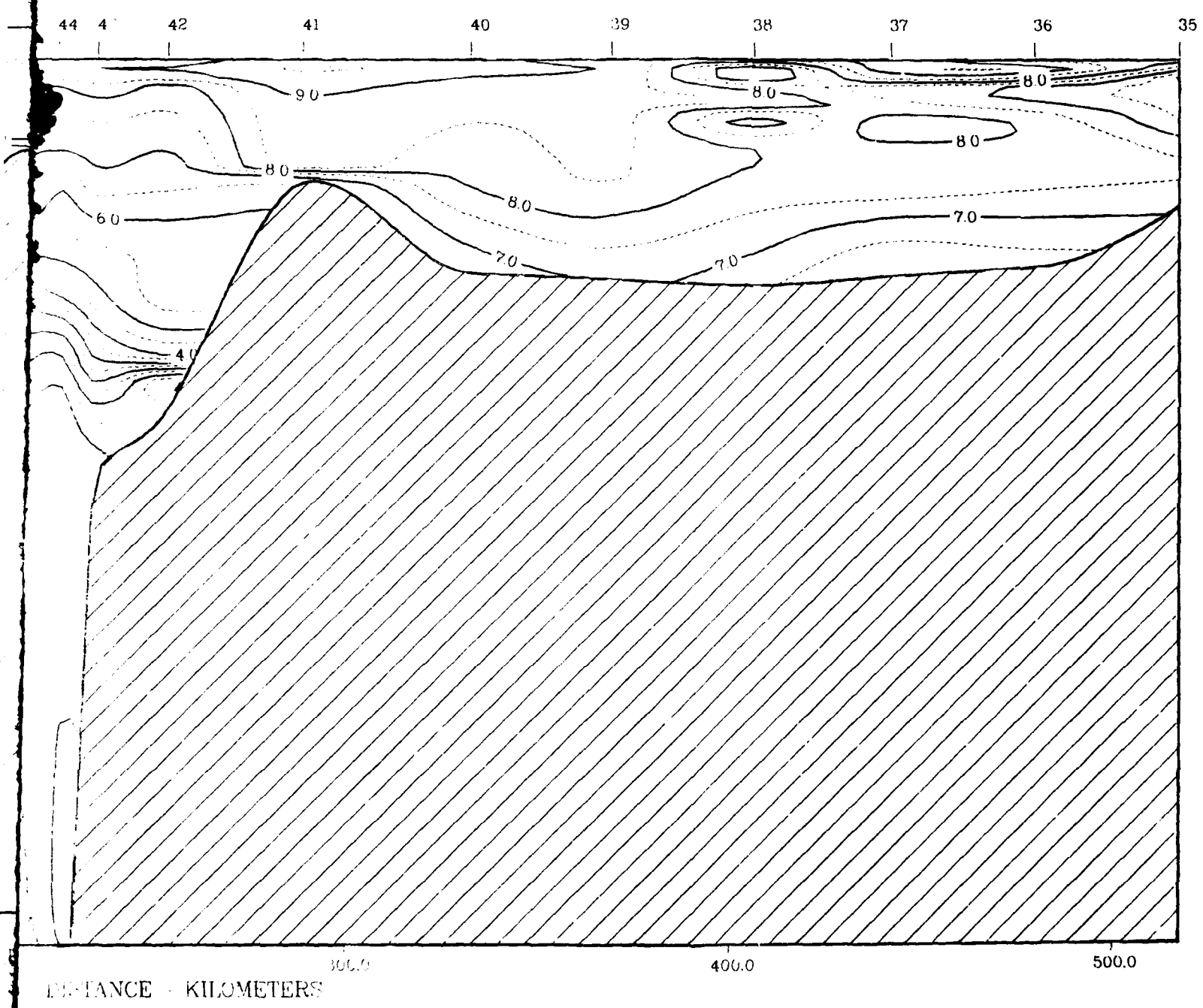


Figure 139. May 1948 temperature section

SOGNEFJORD SECTION
FILE = ICES\$,1948MAY.DAT,1
TEMPERATURE



SOGNEFJORD SECTION
FILE = ICES 1948 MAY DAT 1
SALINITY

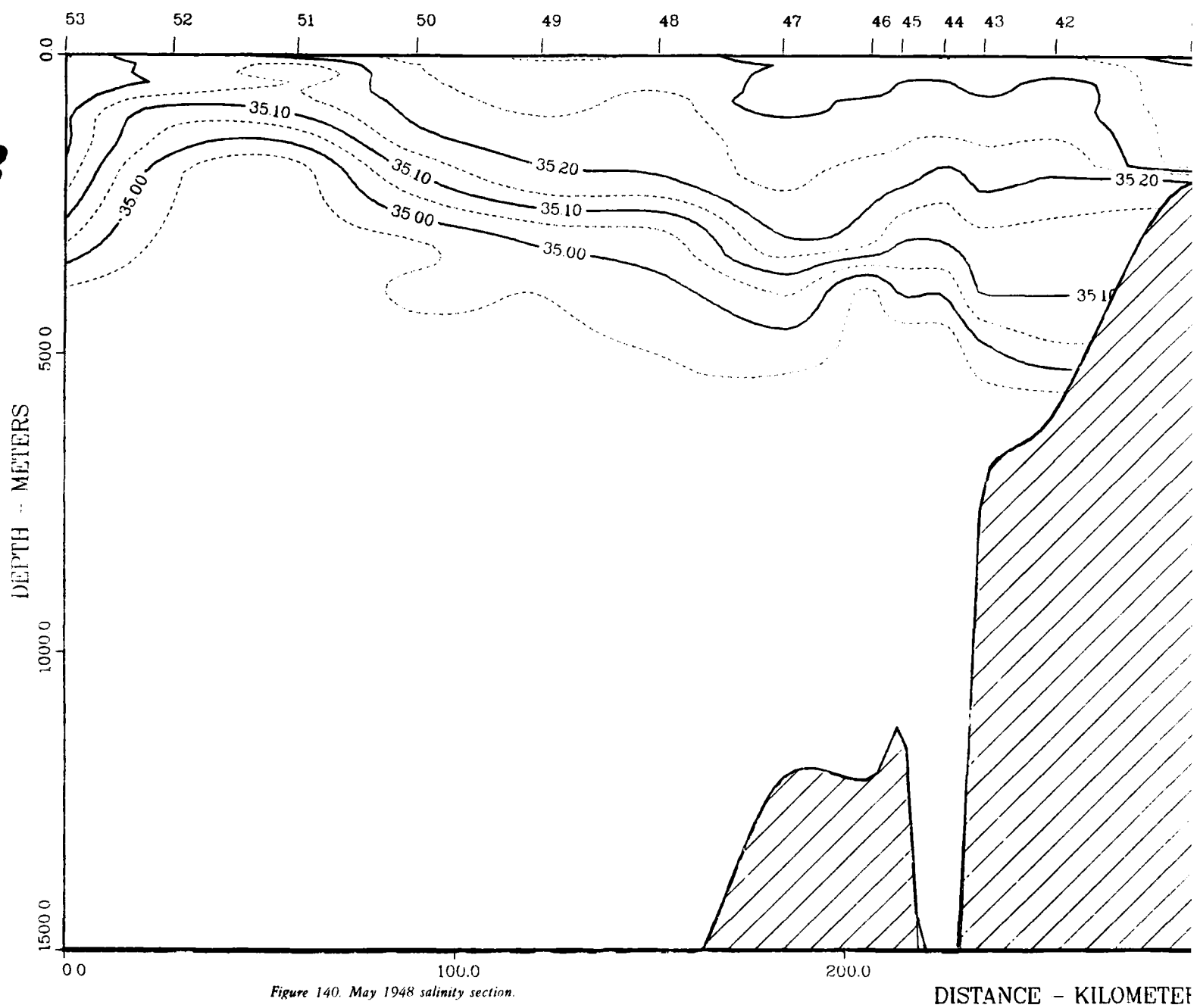
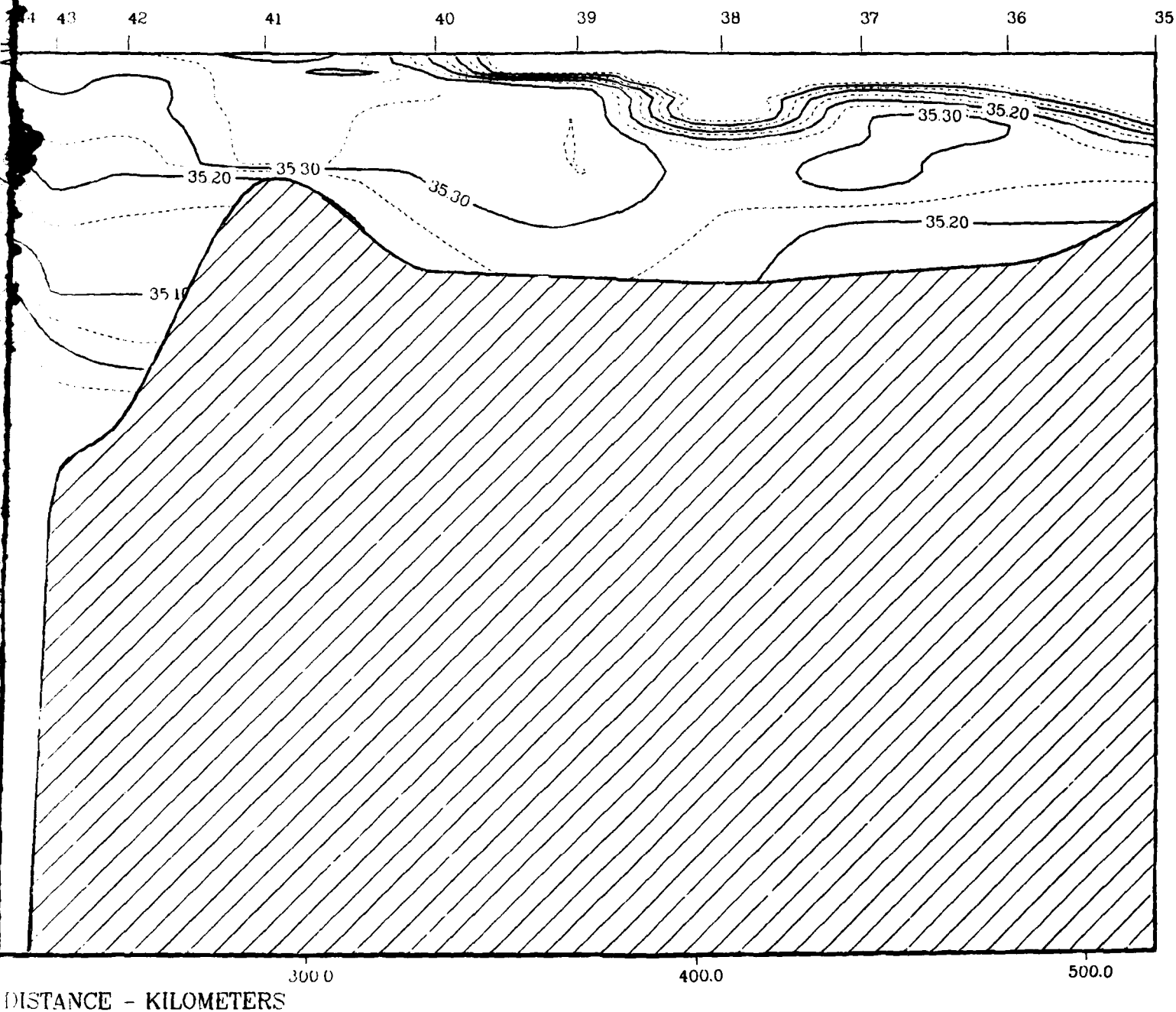


Figure 140. May 1948 salinity section.

SOGNEFJORD SECTION
FILE = ICES\$ 1948MAY.DAT 1
SALINITY



2

ICES\$.1948JUN.DAT

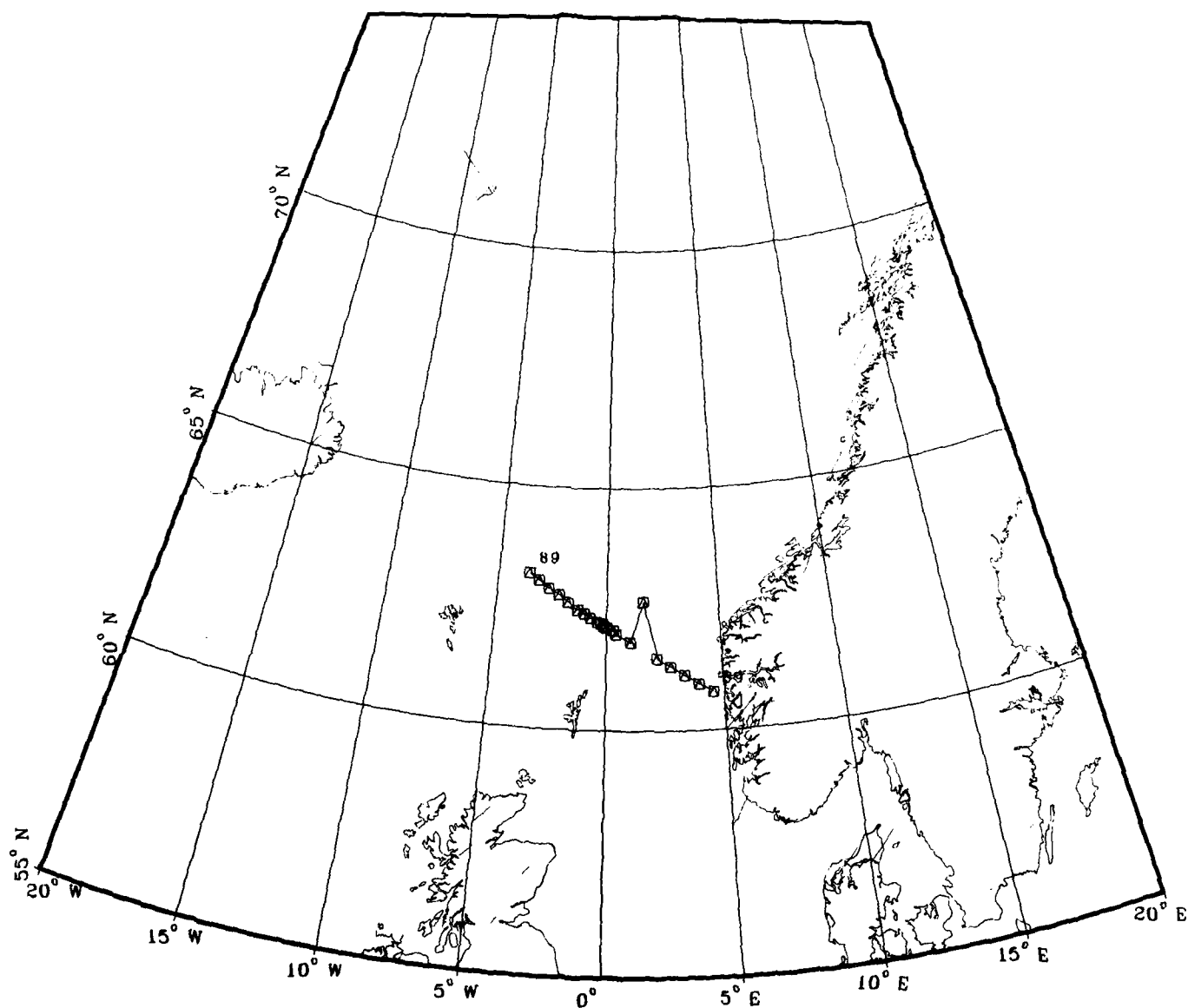


Figure 141. June 1948 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1948JUN.DAT
T/S PLOT

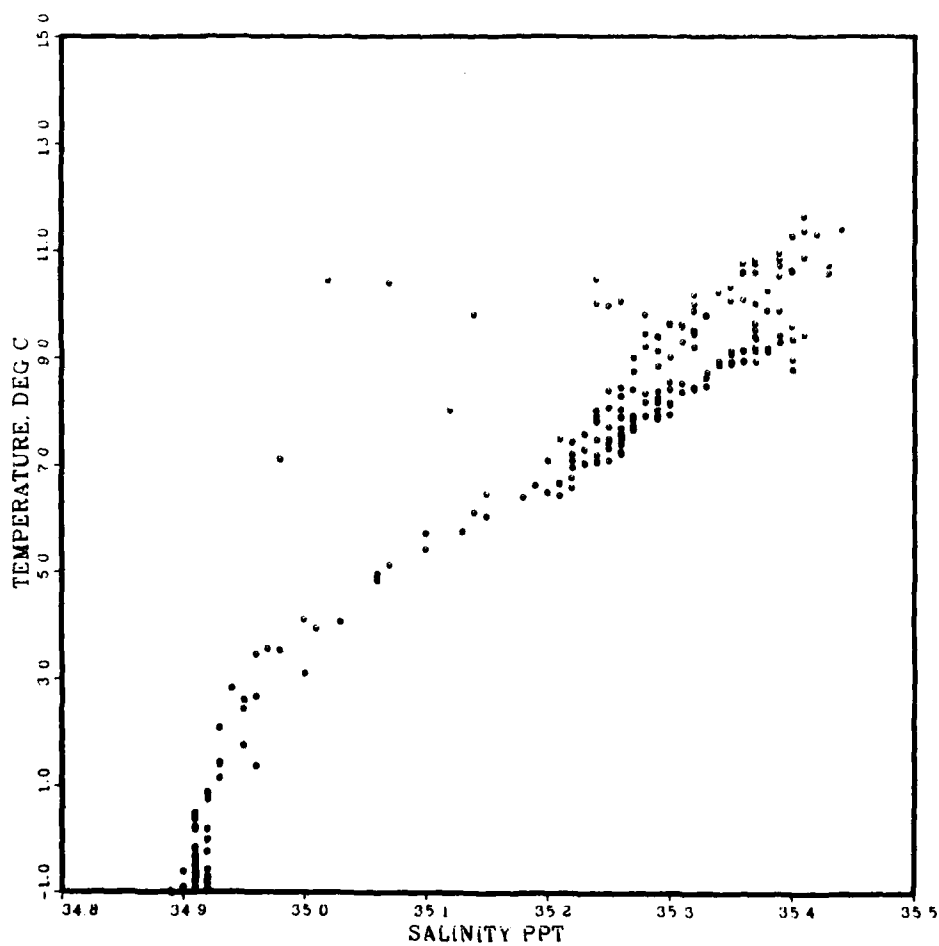


Figure 142. June 1948 temperature/salinity diagram.

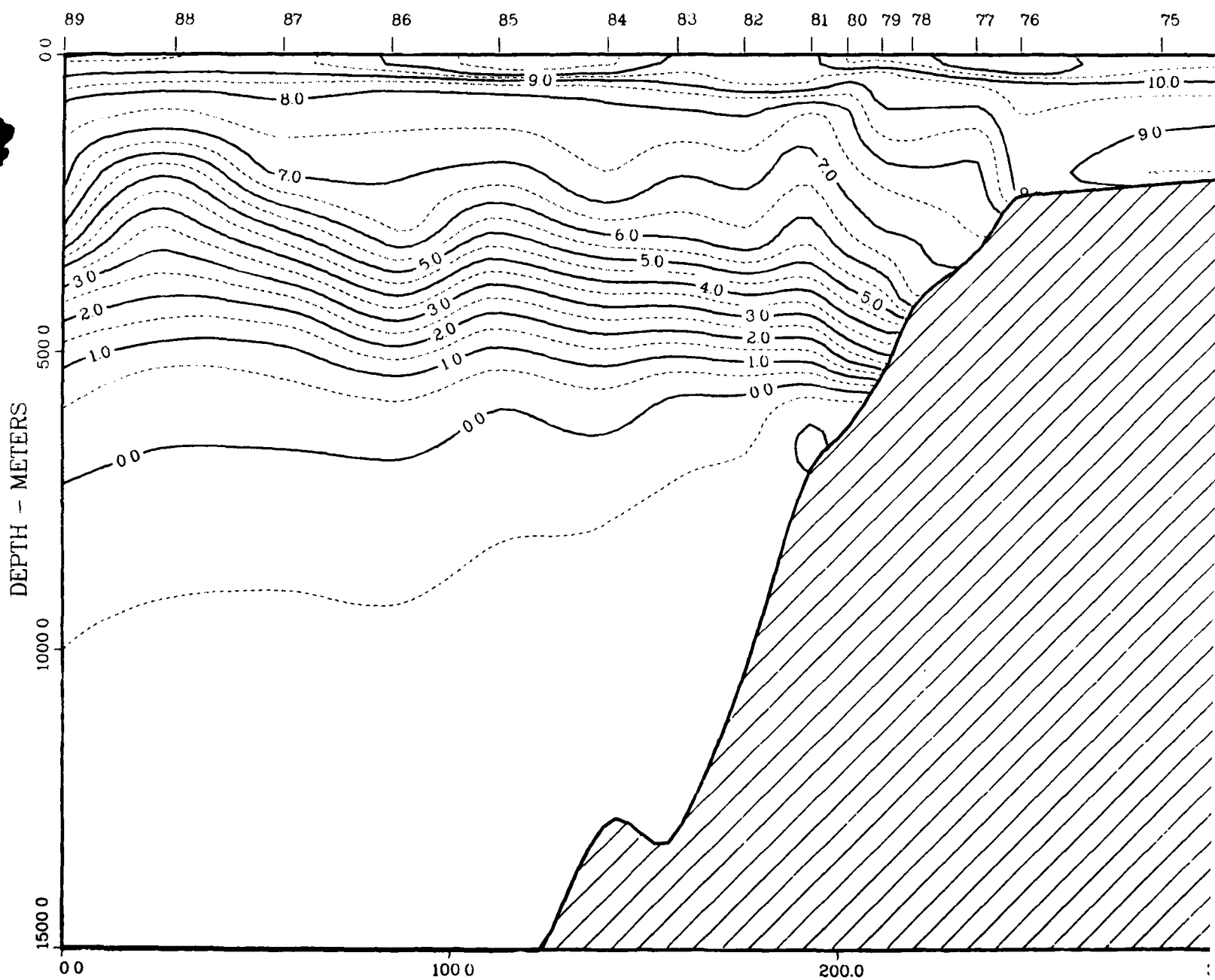
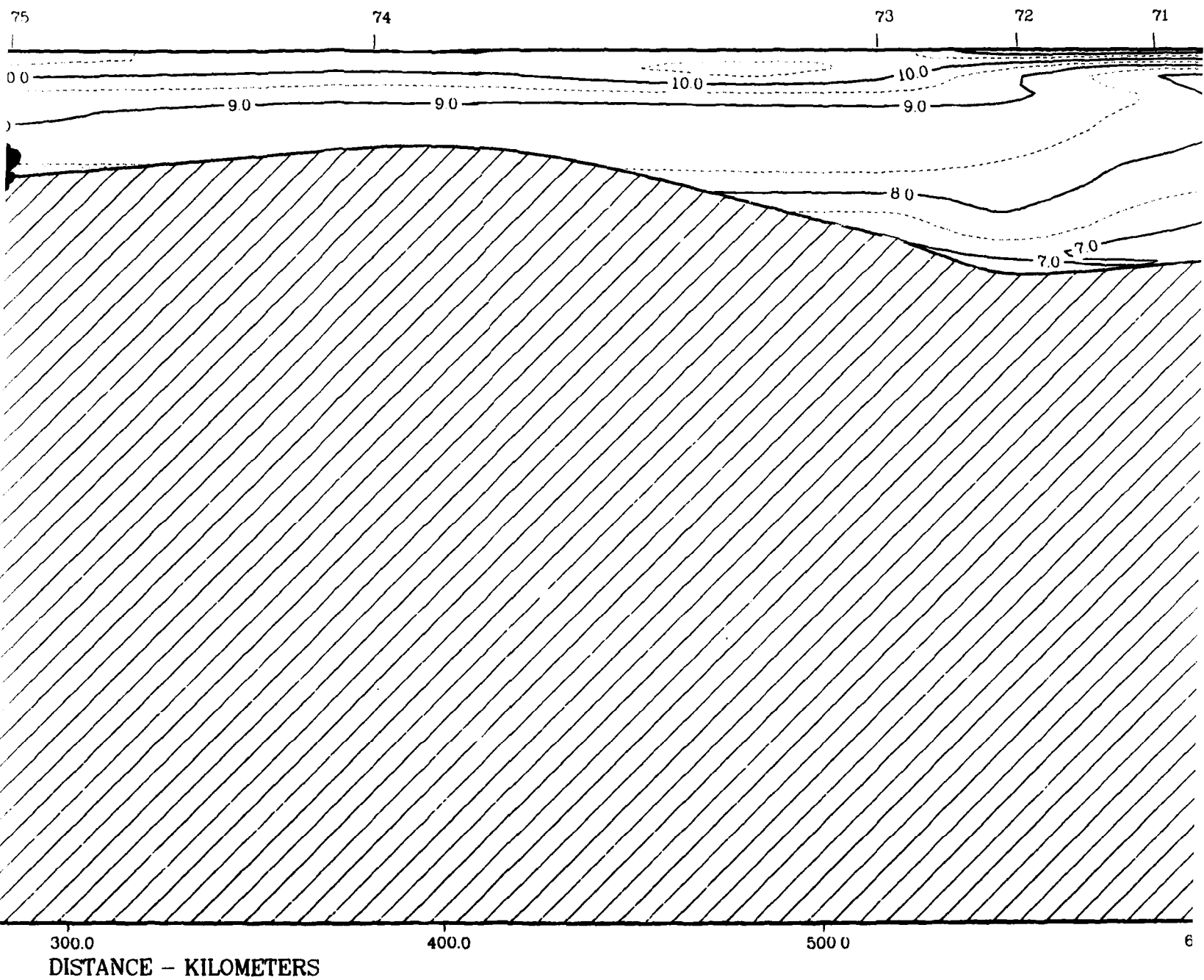
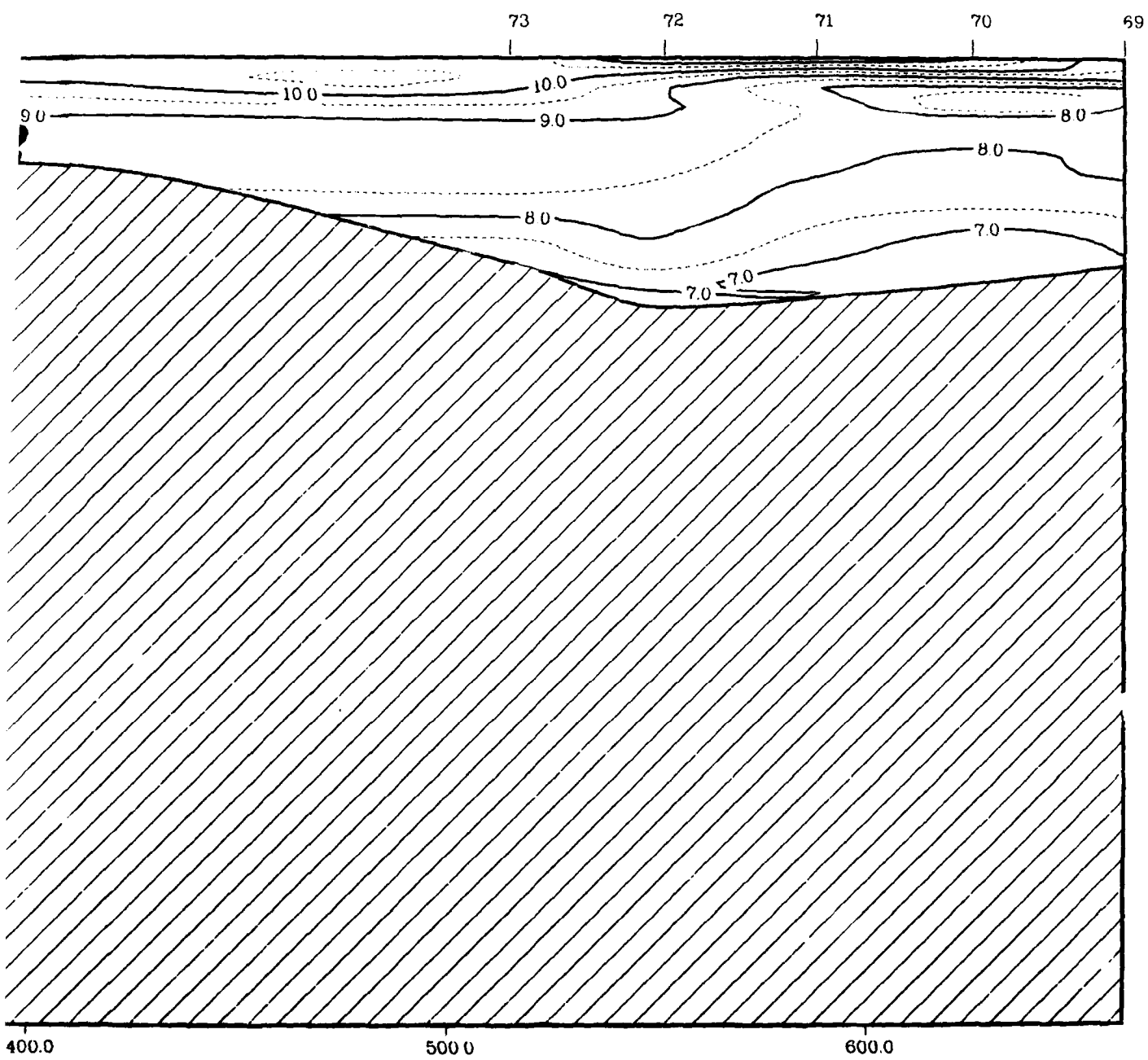


Figure 143. June 1948 temperature section.

SOGNEFJORD SECTION
FILE = ICES\$.1948JUN.DAT.1
TEMPERATURE



2



2

1

3

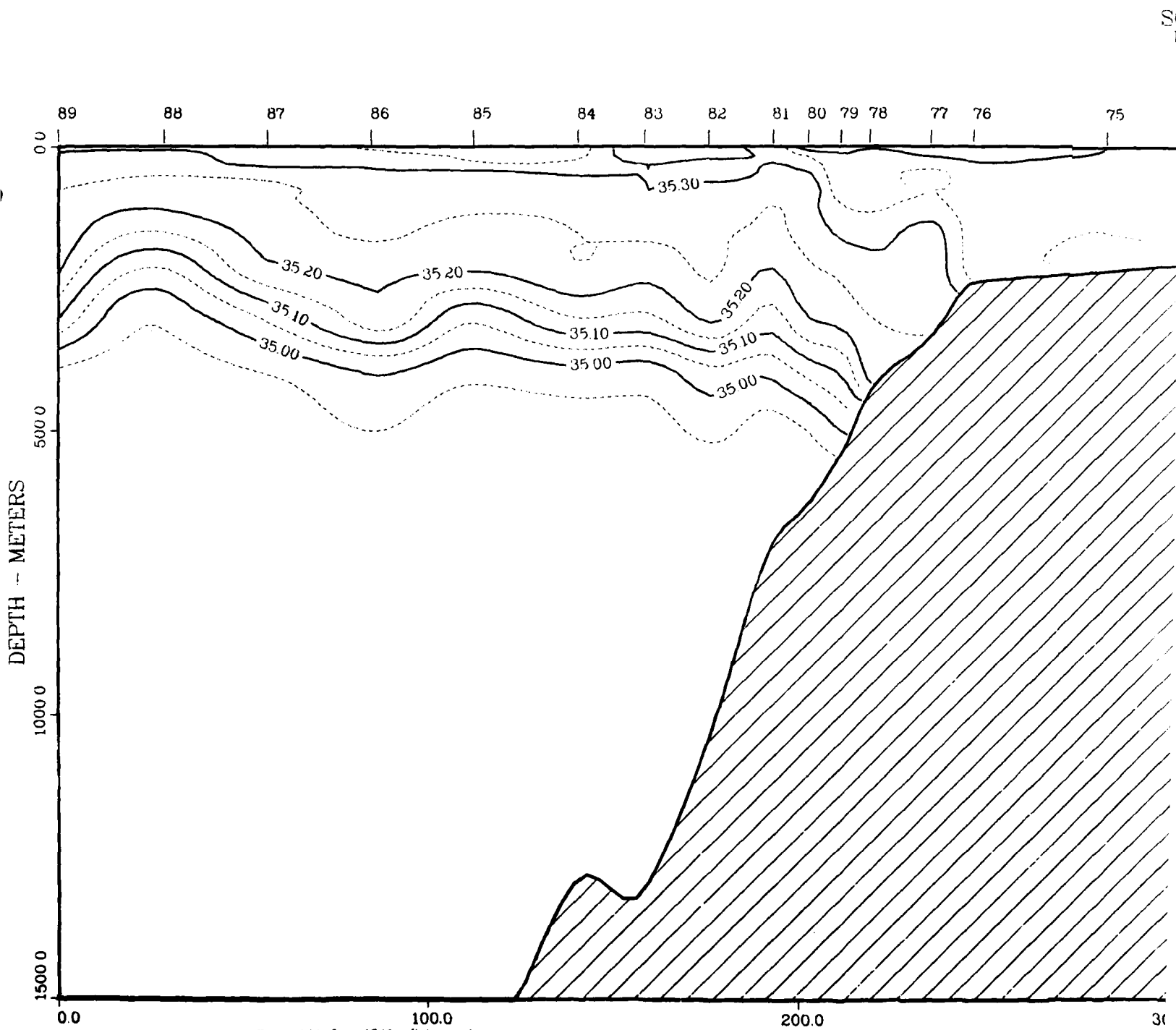
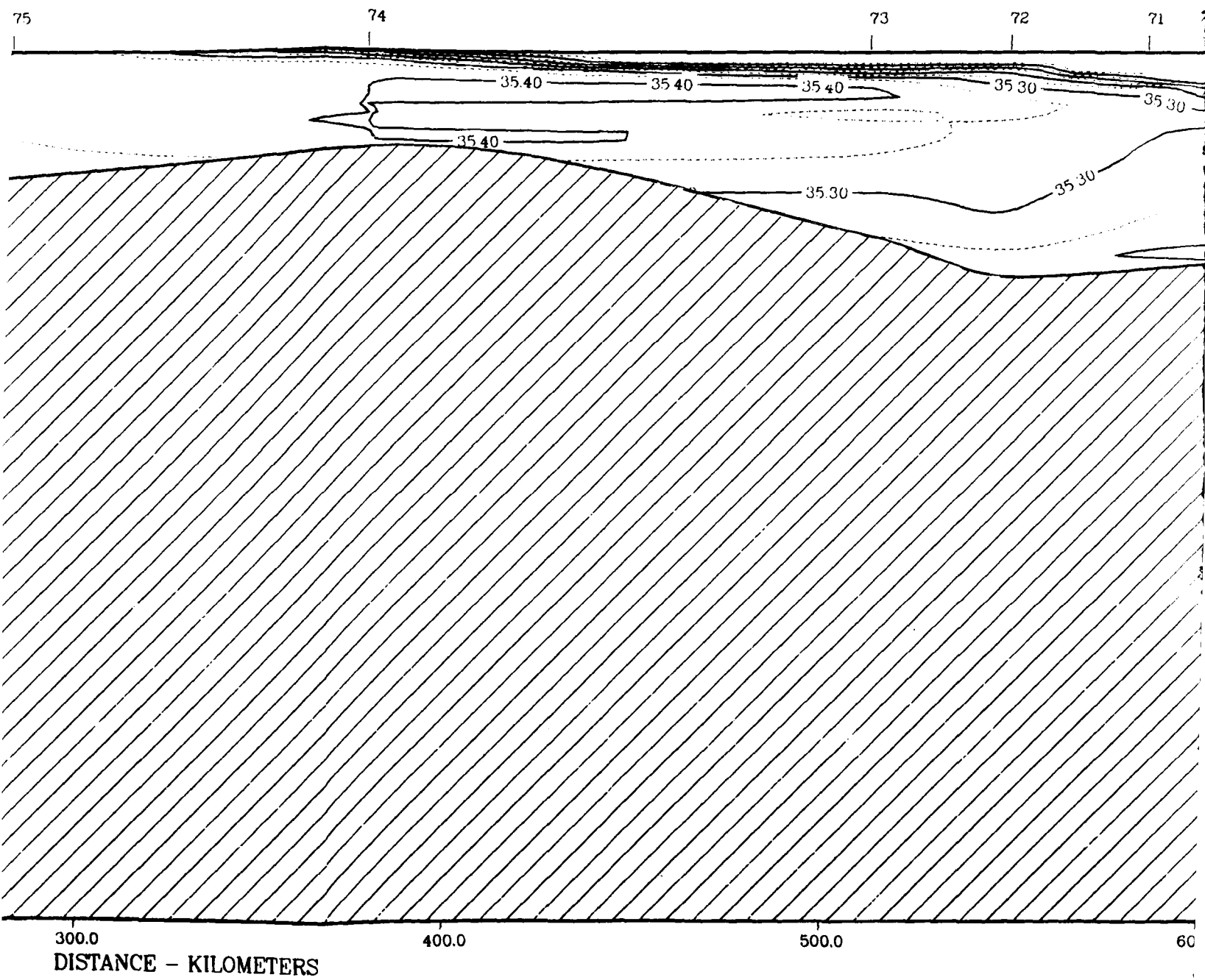
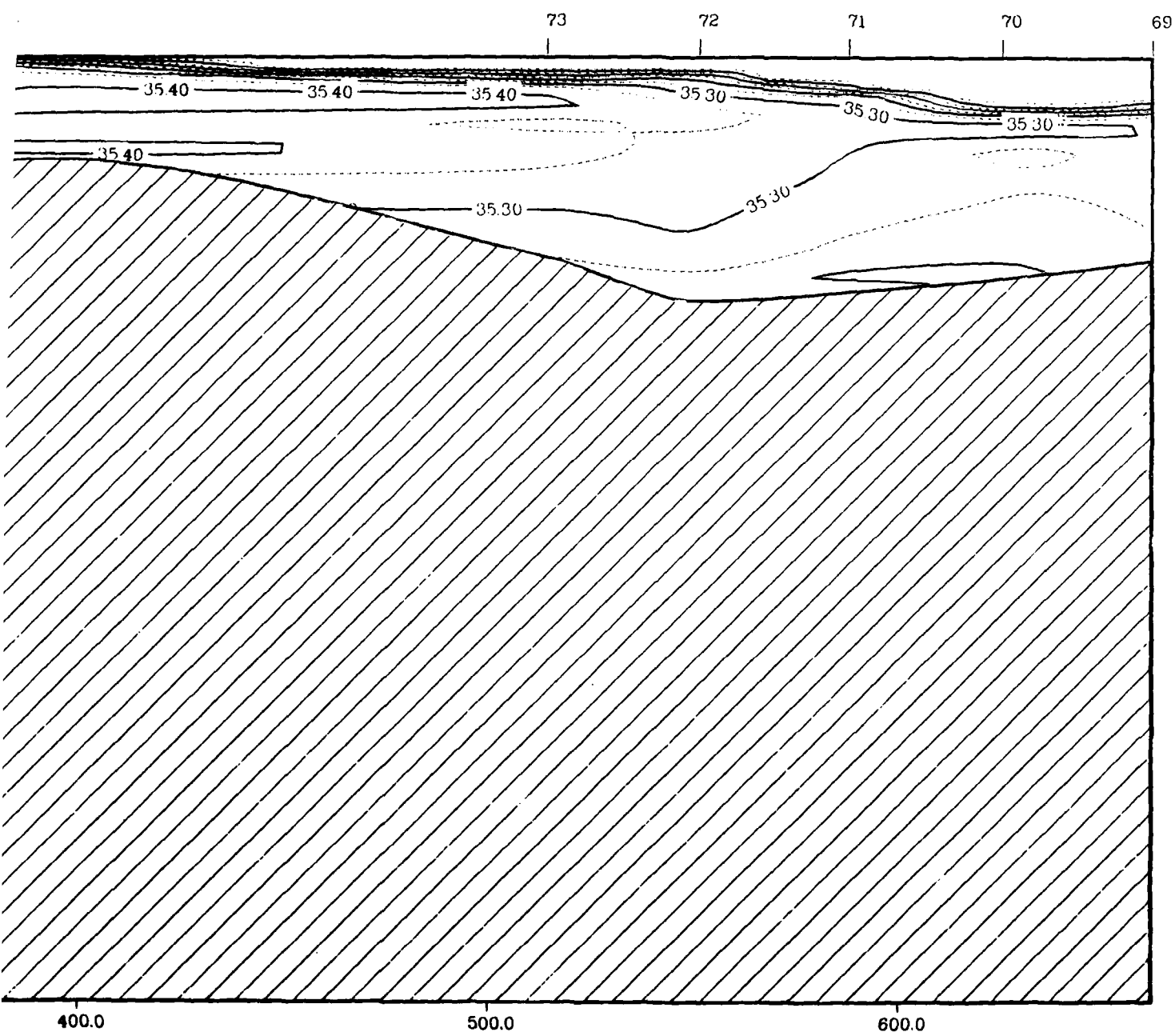


Figure 144. June 1948 salinity section.

SOGNEFJORD SECTION
FILE = ICES\$1948JUN.DAT.1
SALINITY



2



2

3

ICES\$.1948AUG.DAT

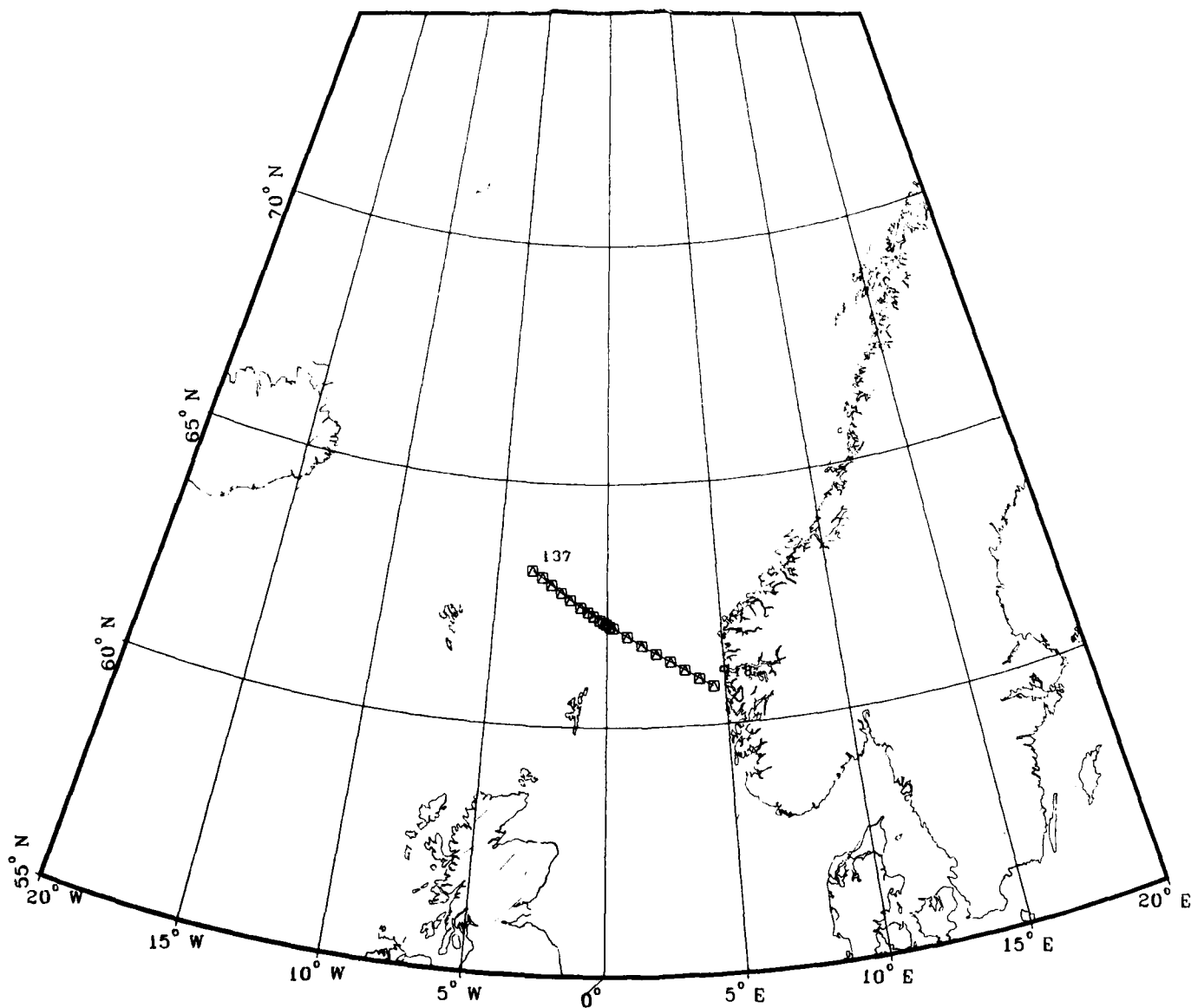


Figure 145. August 1948 station positions.

SOGNEFJORD SECTION
FILE = ICES\$ 1948AUG DAT
T/S PLOT

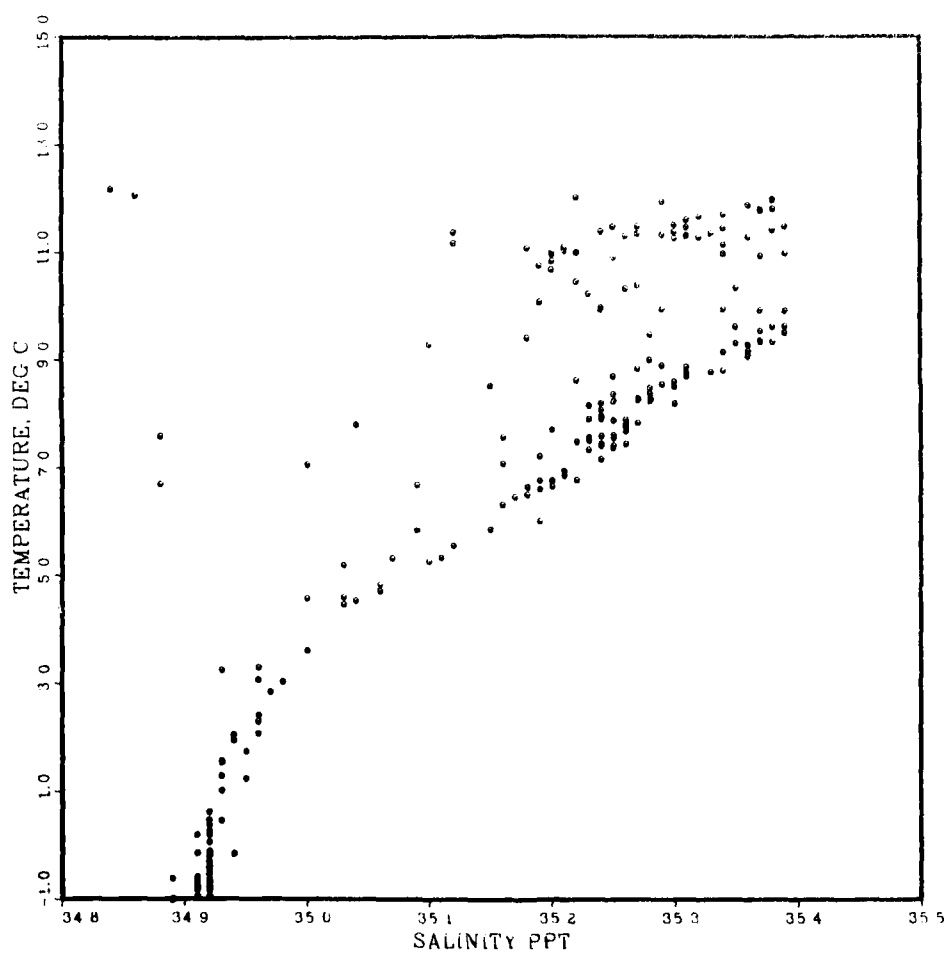


Figure 146. August 1948 temperature/salinity diagram.

SOGNEFJORD SECTION
FILE = ICES\$ 1948AUG DAT 1
TEMPERATURE

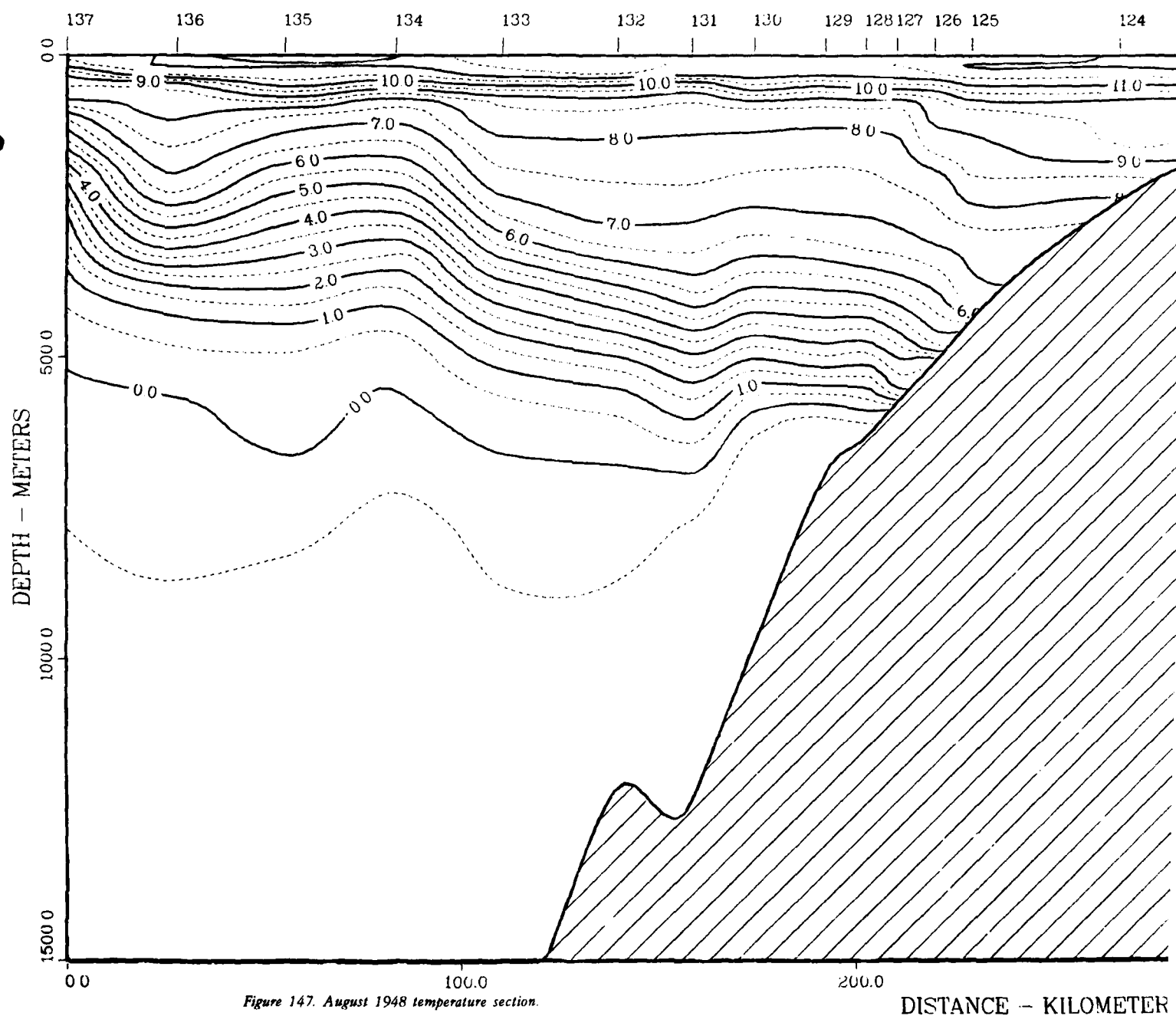
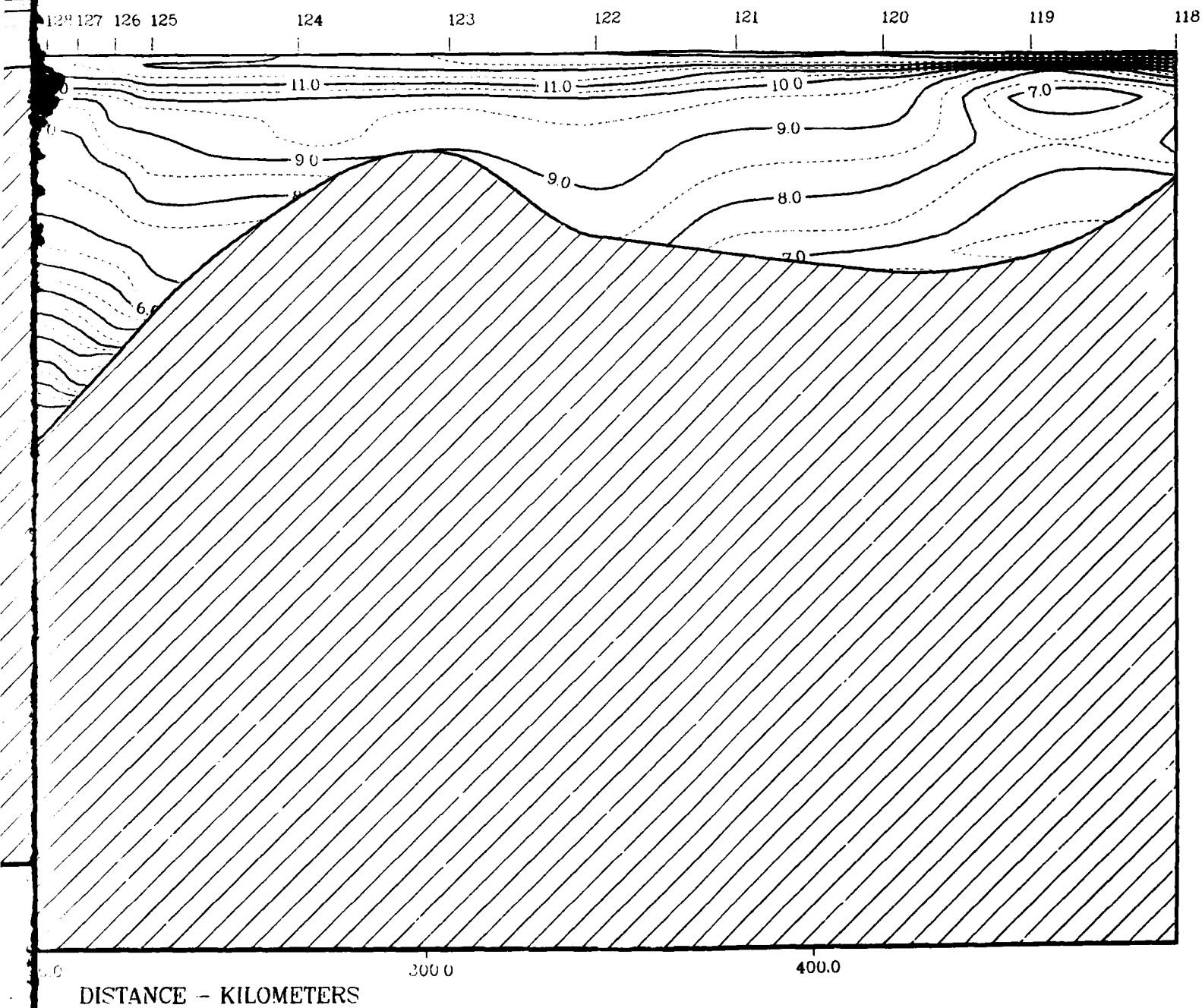


Figure 147. August 1948 temperature section.

SOGNEFJORD SECTION
FILE = ICES\$1948AUG.DAT.1
TEMPERATURE



SOGNEFJORD SECTION
 FILE = ICES# 1948AUG DAT.1
 SALINITY

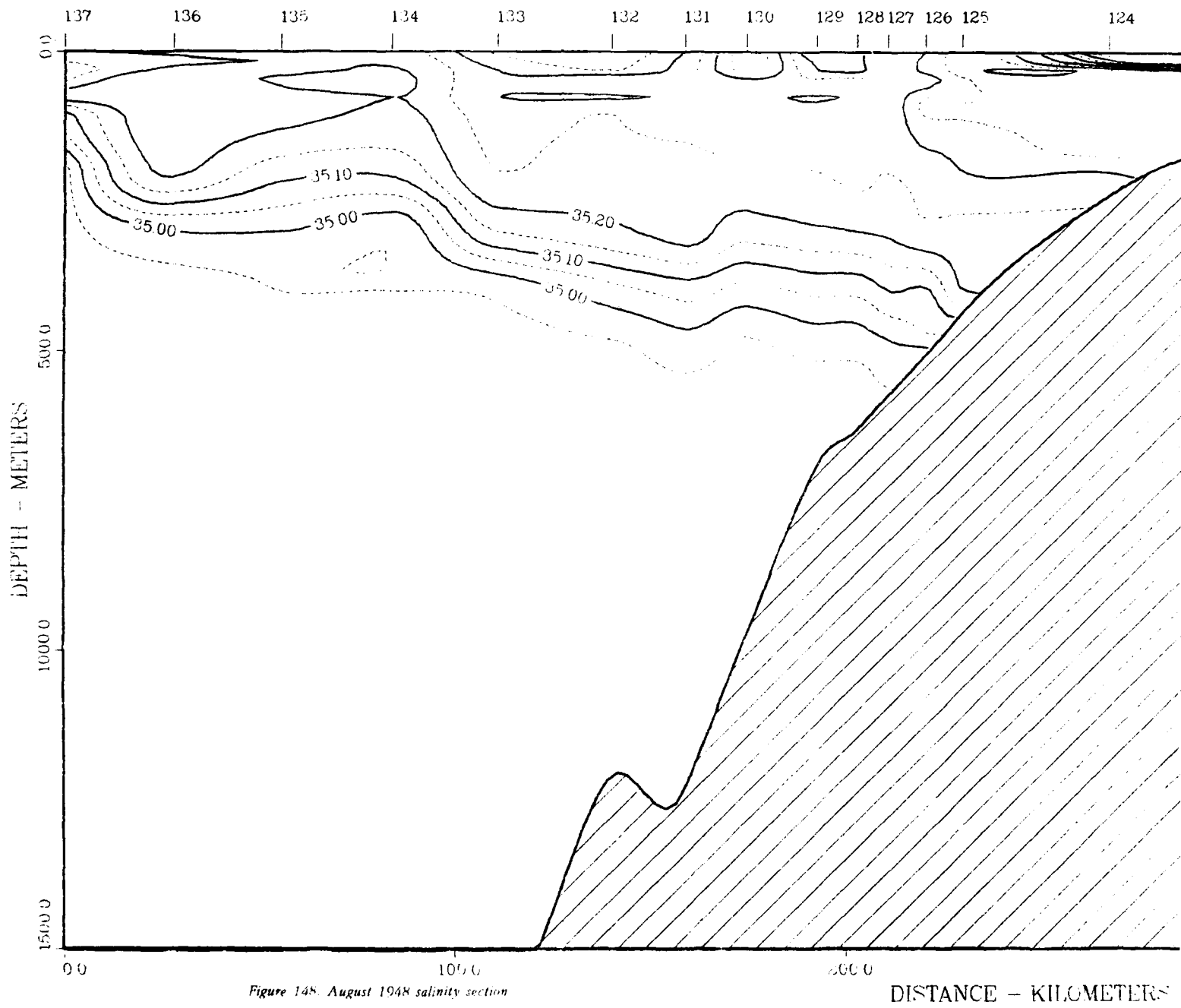
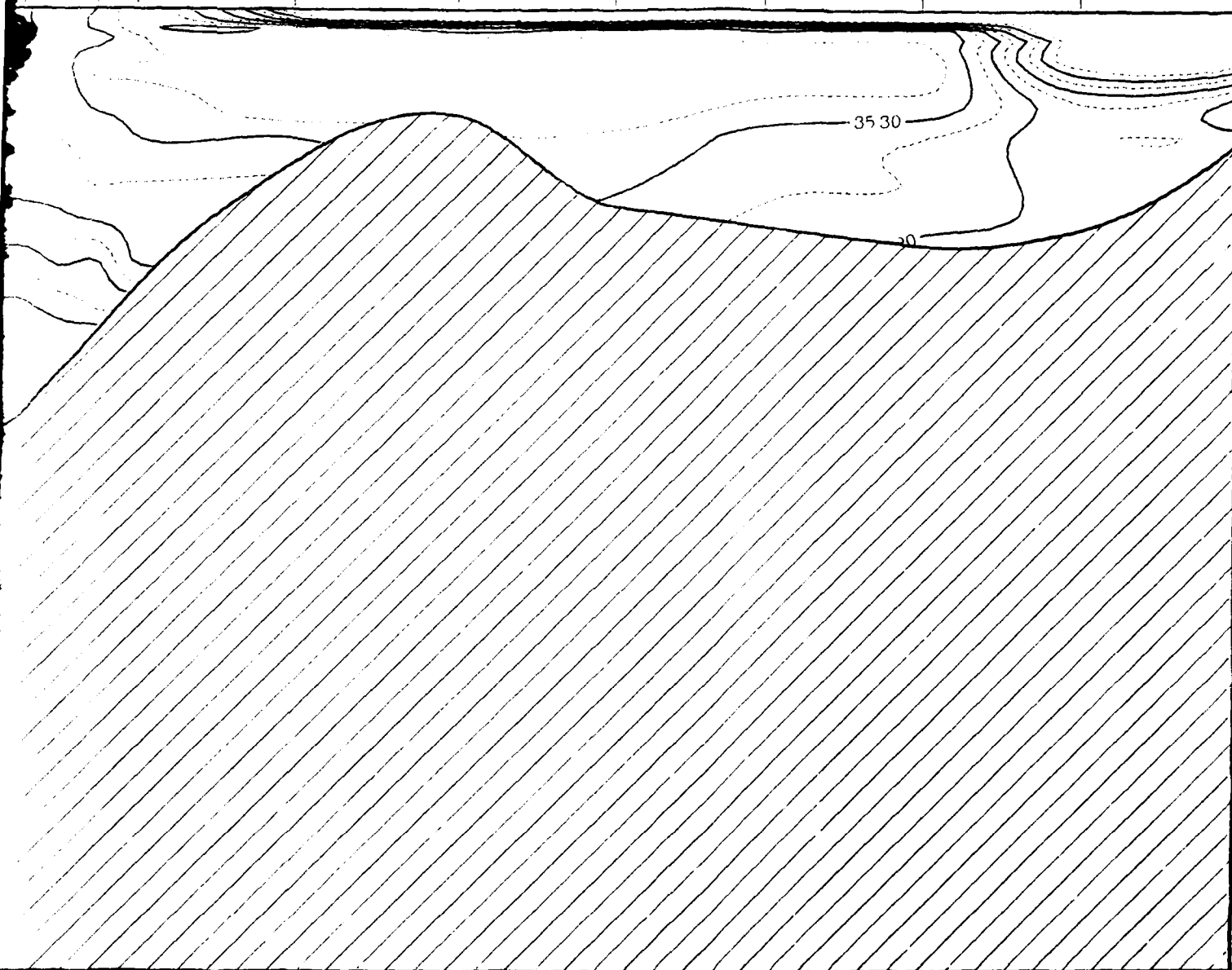


Figure 148. August 1948 salinity section

SOGNEFJORD SECTION
FILE = ICES 1948 AUG DAT:1
SALINITY

128 127 126 125 124 123 122 121 120 119 118



DISTANCE - KILOMETERS

2

ICES\$1949MAY.DAT

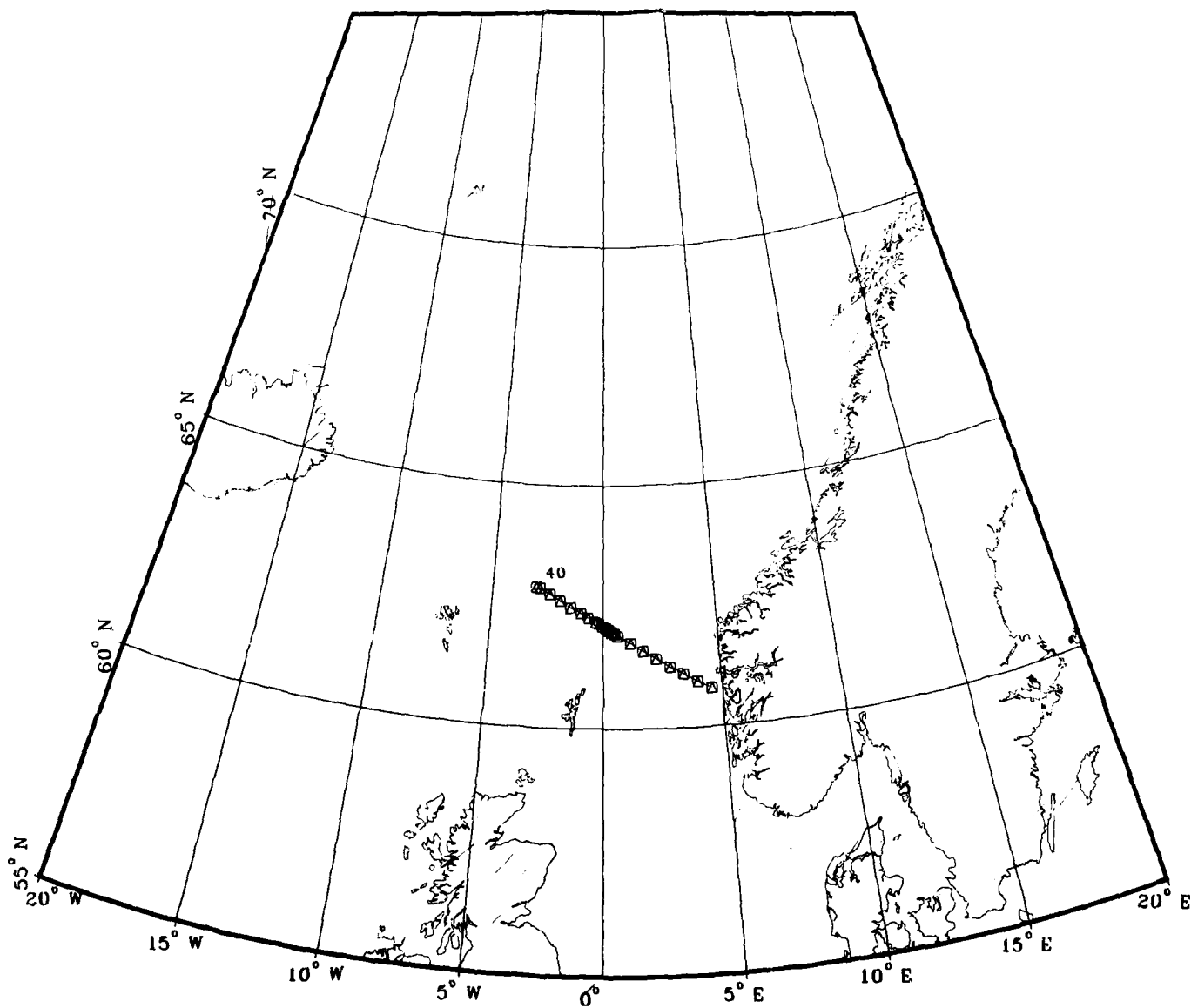


Figure 149. May 1949 station positions.

SOGNEFJORD SECTION
FILE = ICES\$ 1949MAY.DAT
T/S PLOT

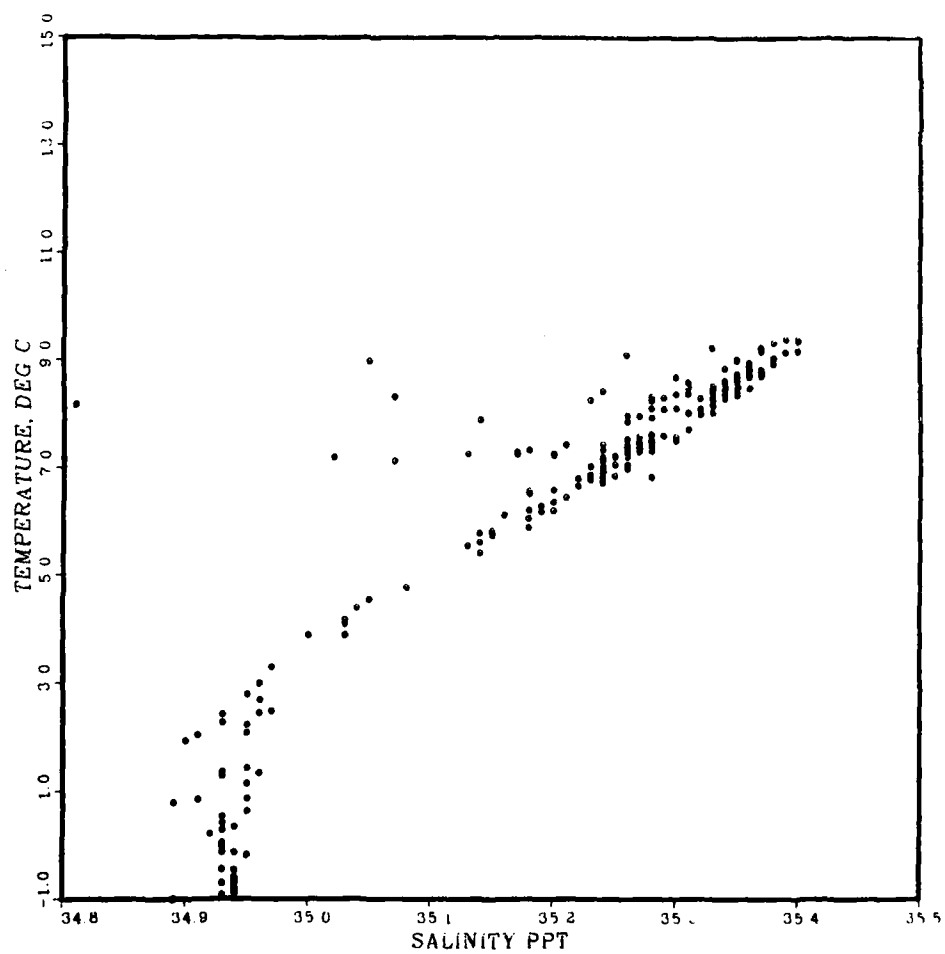


Figure 150. May 1949 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$1949MAY.DAT.1
 TEMPERATURE

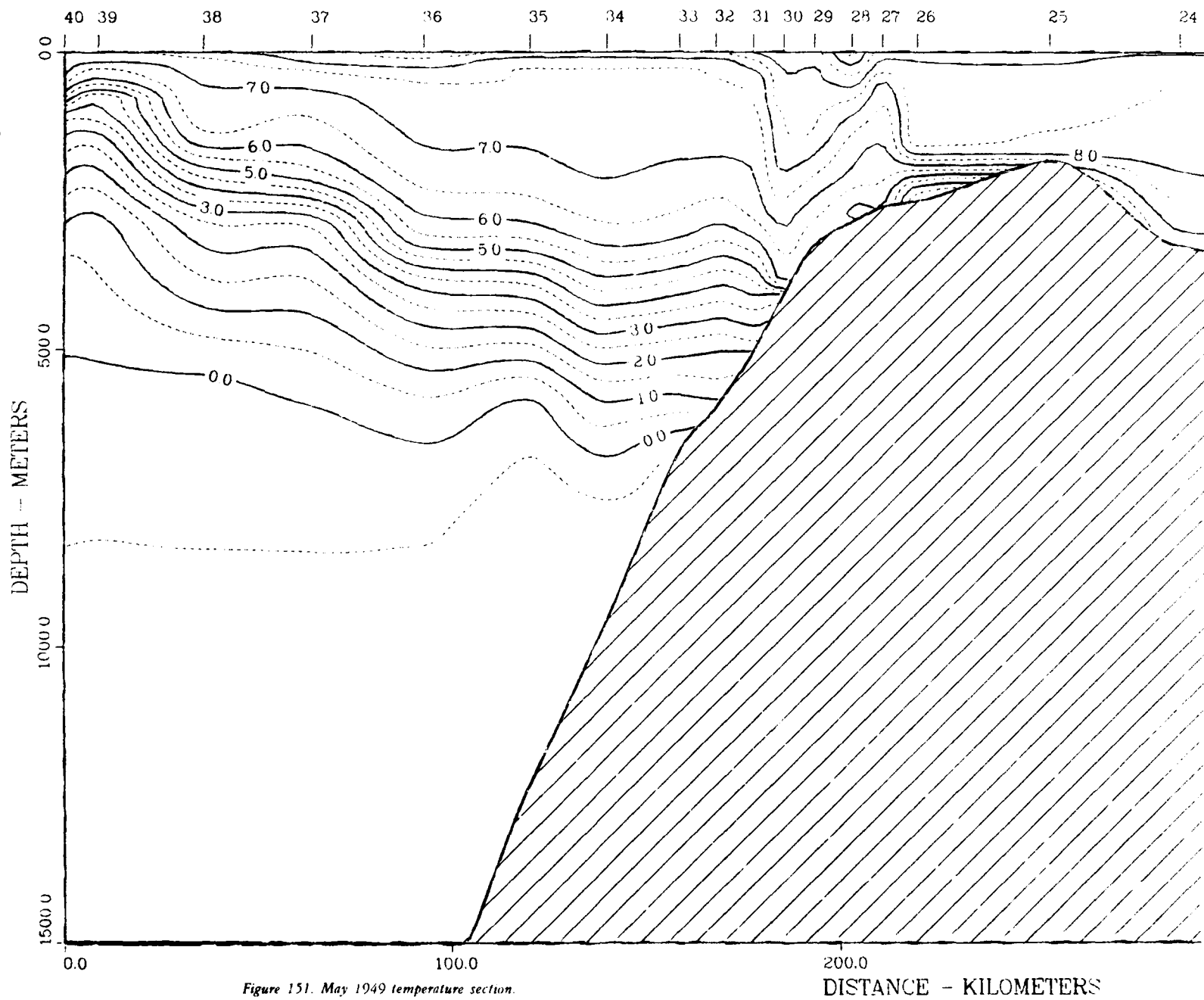
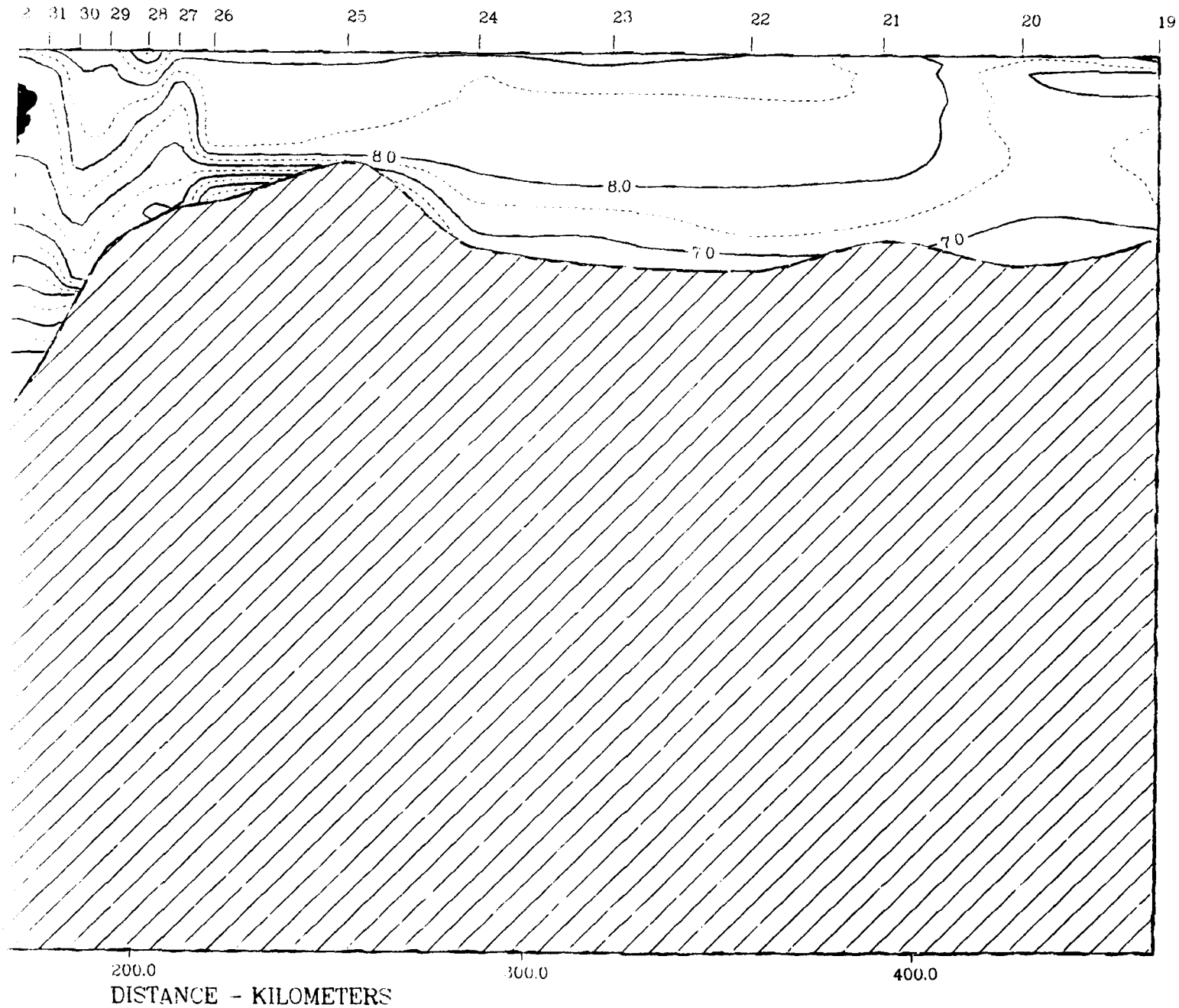


Figure 151. May 1949 temperature section.

SOGNEFJORD SECTION
FILE = ICES\$1949MAY DAT.1
TEMPERATURE



SOGNEFJORD SECTION
 FILE = ICES 1949 MAY DATA
 SALINITY

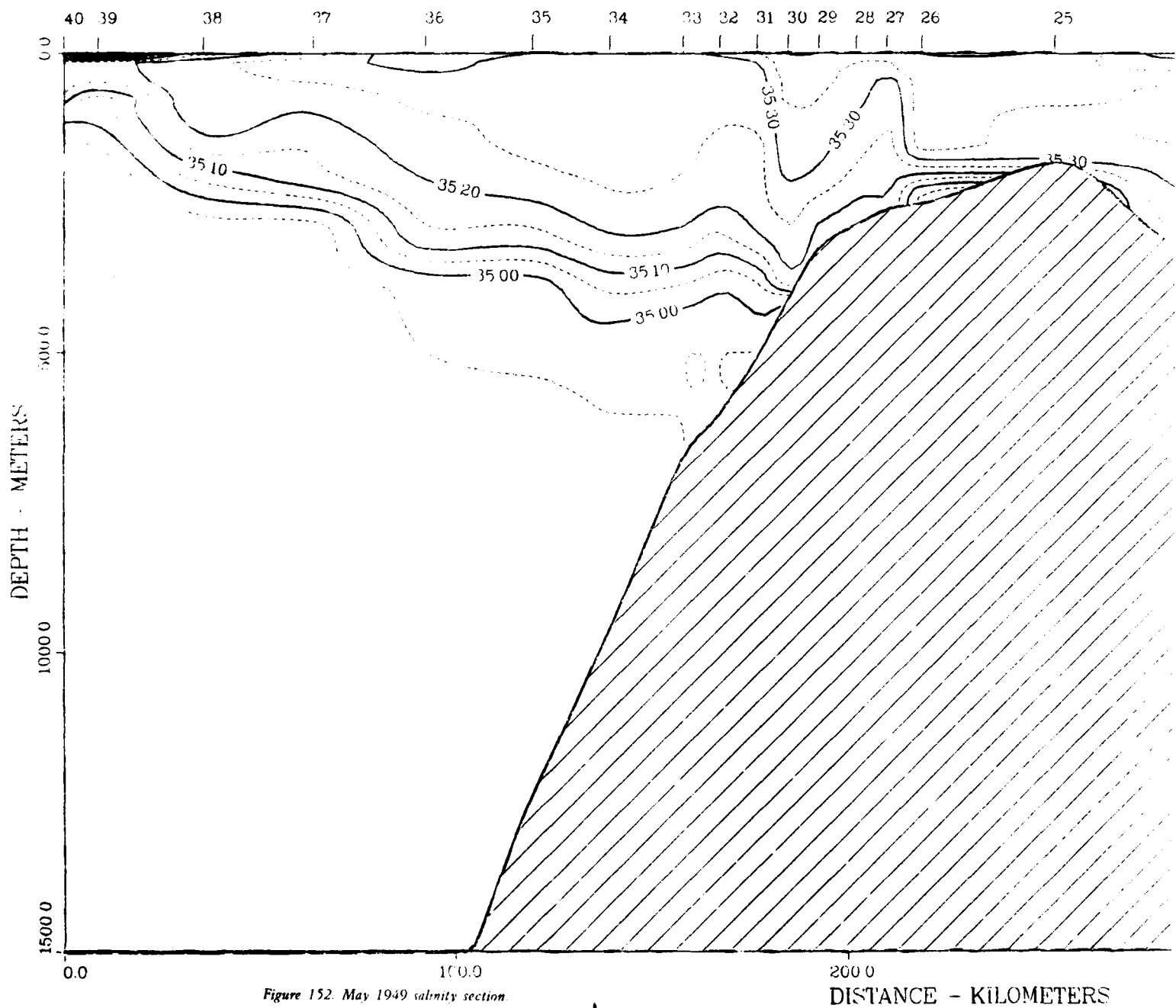
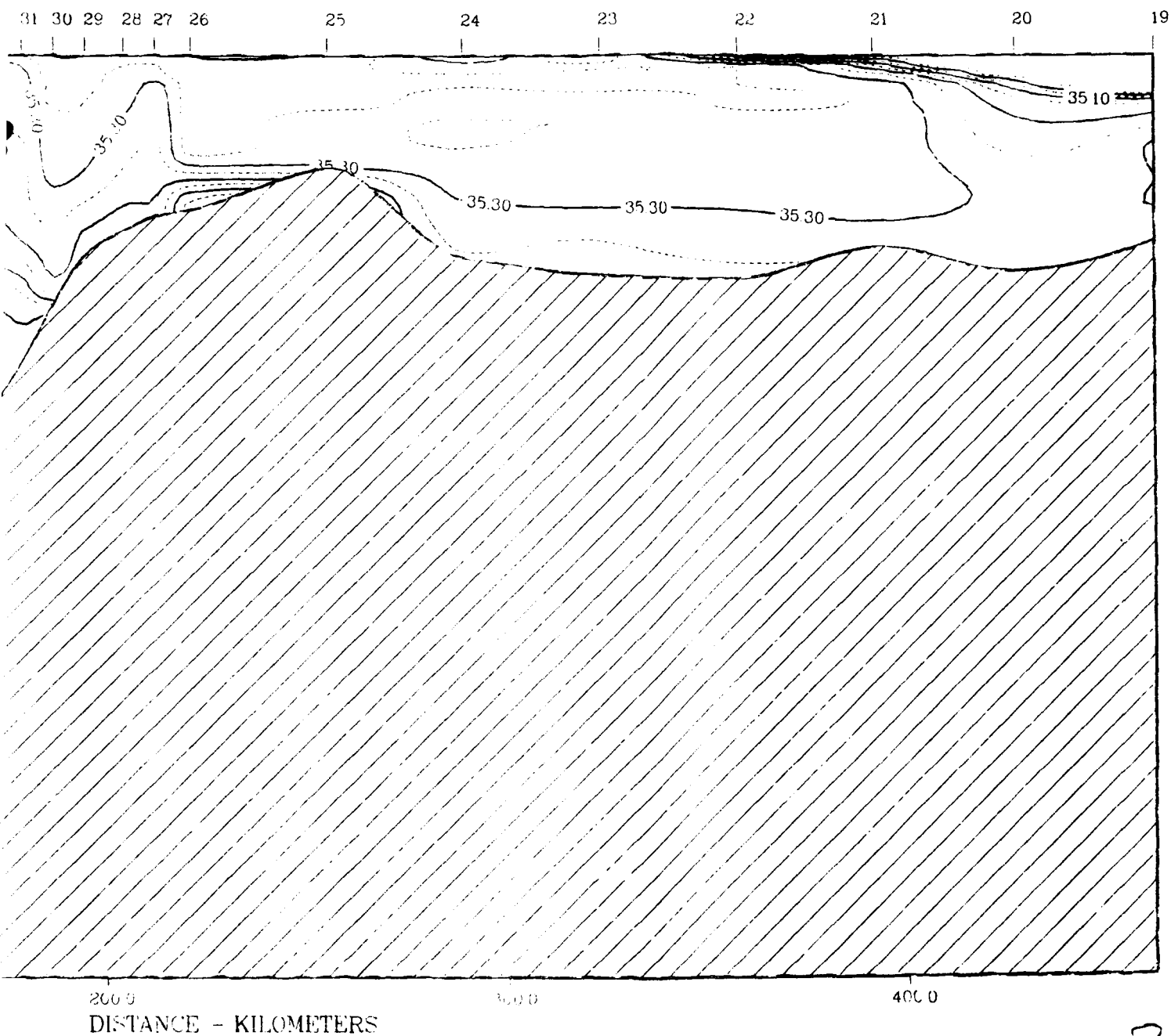


Figure 152. May 1949 salinity section.

SOGNEFJORD SECTION
FILE = ICES 1949 MAY DAT:1
SALINITY



SOGNEFJORD SECTION
FILE = ICES\$1949JUL.DAT
T/S PLOT

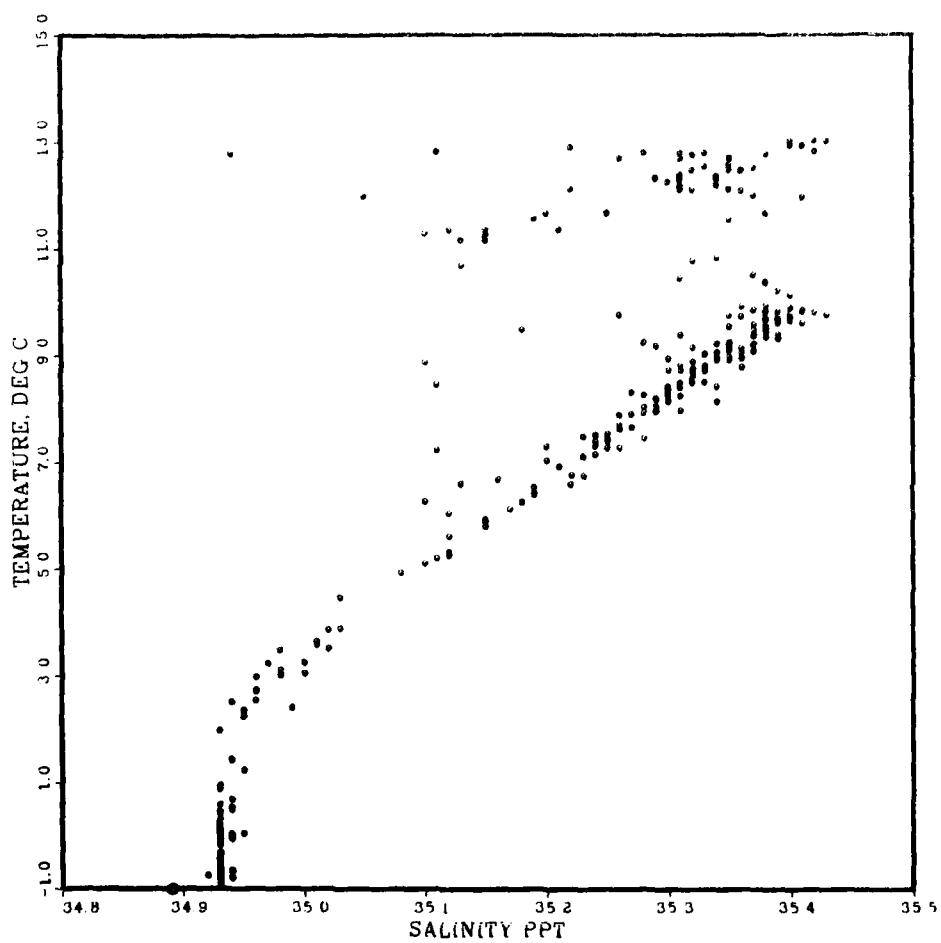


Figure 154. July 1949 temperature/salinity diagram.

SOGNEFJORD SECTION

FILE = ICES\$1949JUL.DAT.1
TEMPERATURE

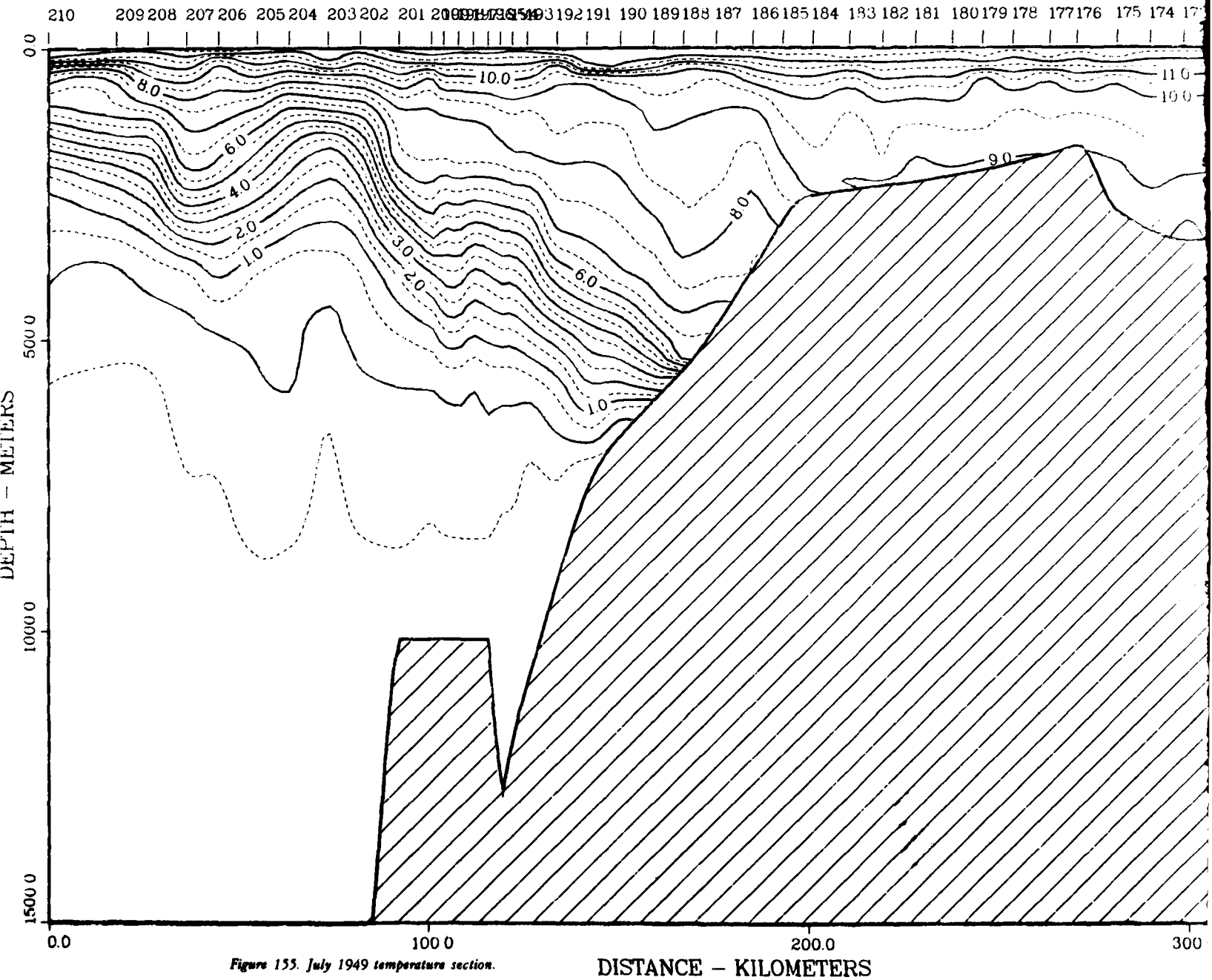


Figure 155. July 1949 temperature section.

DISTANCE - KILOMETERS

SOGNEFJORD SECTION
 FILE = ICES\$1949JUL.DAT.1
 TEMPERATURE

95193 192 191 190 189 188 187 186 185 184 183 182 181 180 179 178 177 176 175 174 173 172 171 170 169 168 167 166



DISTANCE - KILOMETERS

2

SOGNEFJORD SECTION

FILE = ICES\$1949JUL.DAT:1
SALINITY

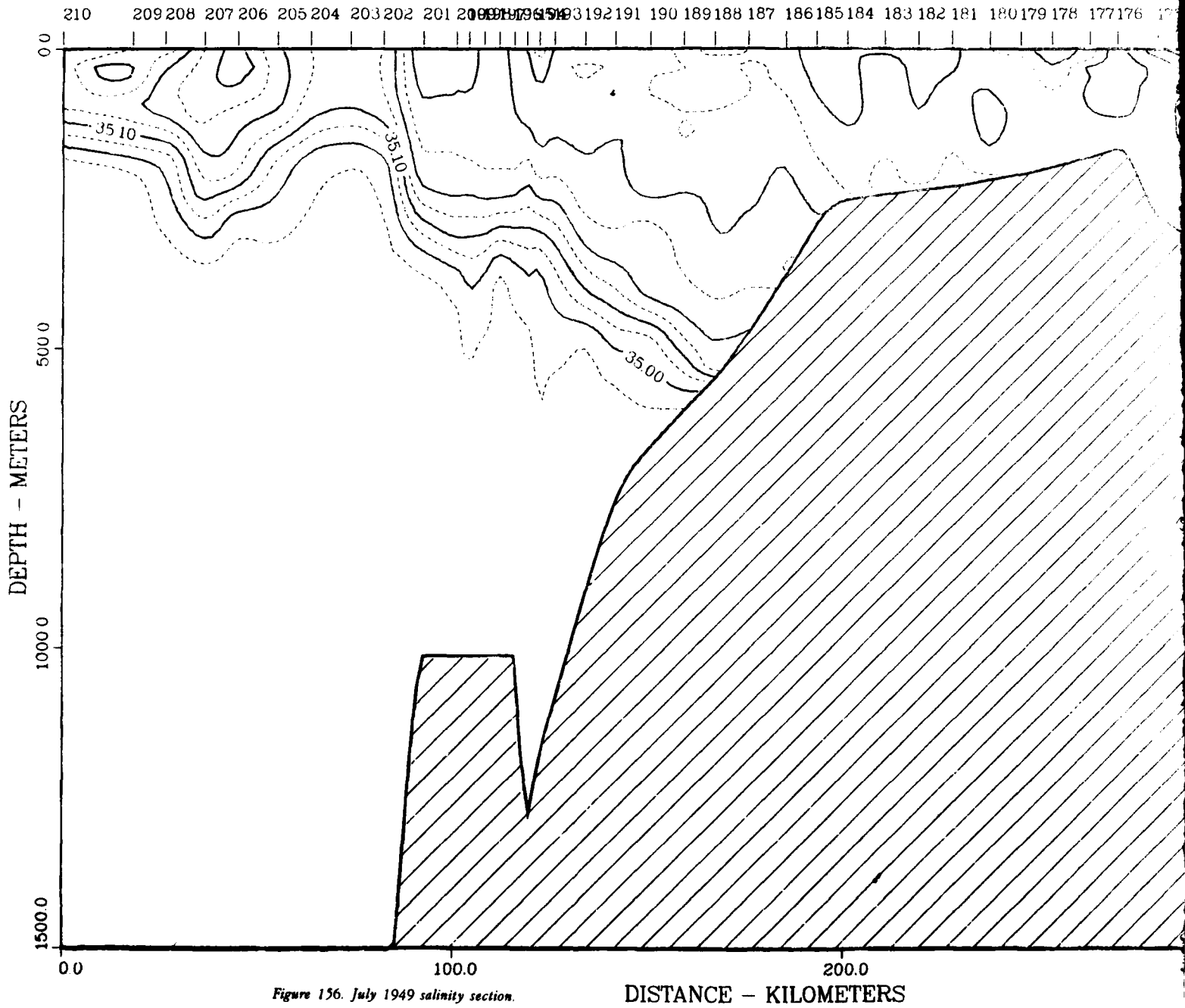
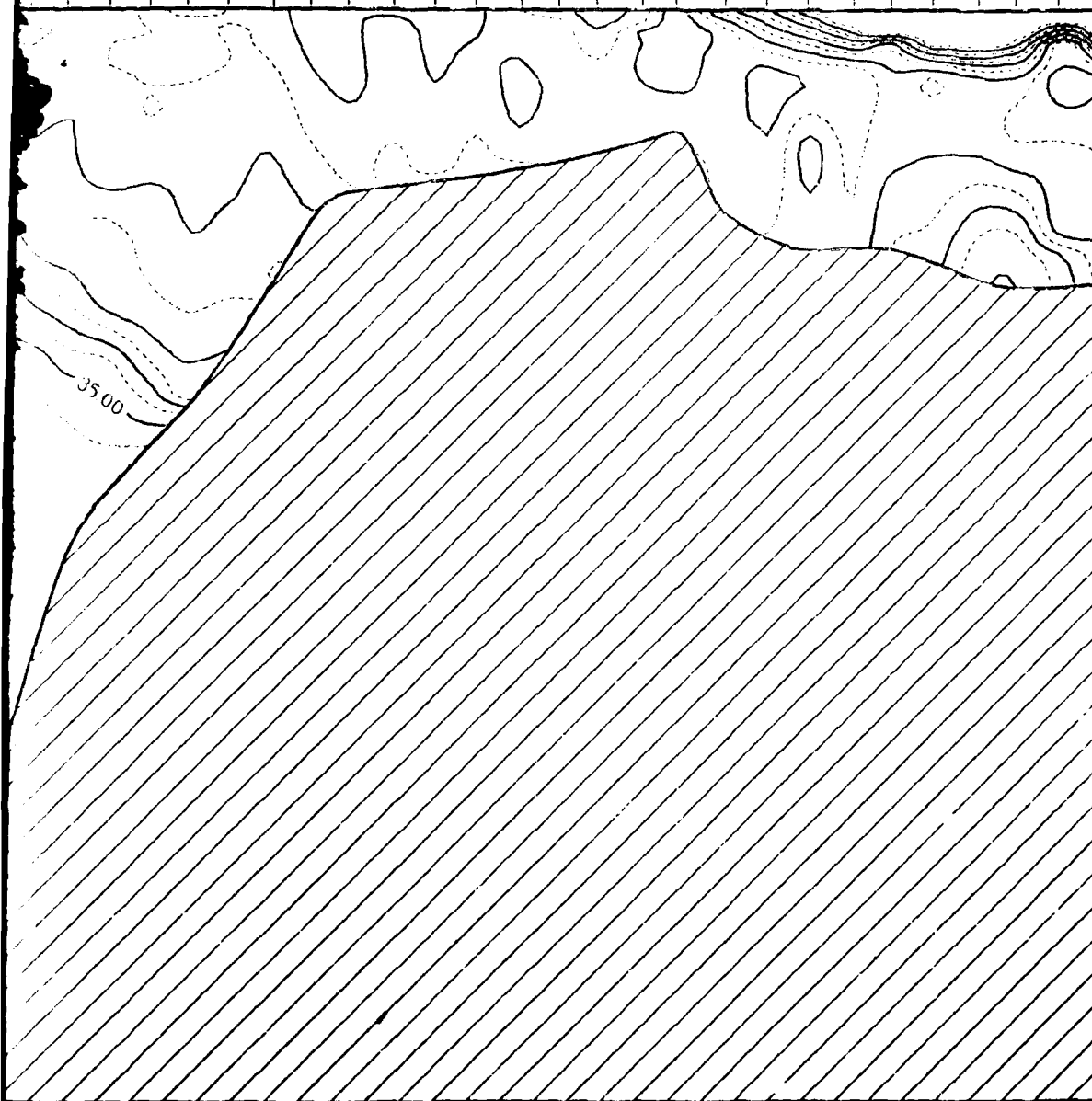


Figure 156. July 1949 salinity section.

SOGNEFJORD SECTION

FILE = ICES\$1949JUL.DAT.1
SALINITY

192 191 190 189 188 187 186 185 184 183 182 181 180 179 178 177 176 175 174 173 172 171 170 169 168 167 166



200.0

300.0

DISTANCE - KILOMETERS

1

2

ICES\$:1950PMA.DAT

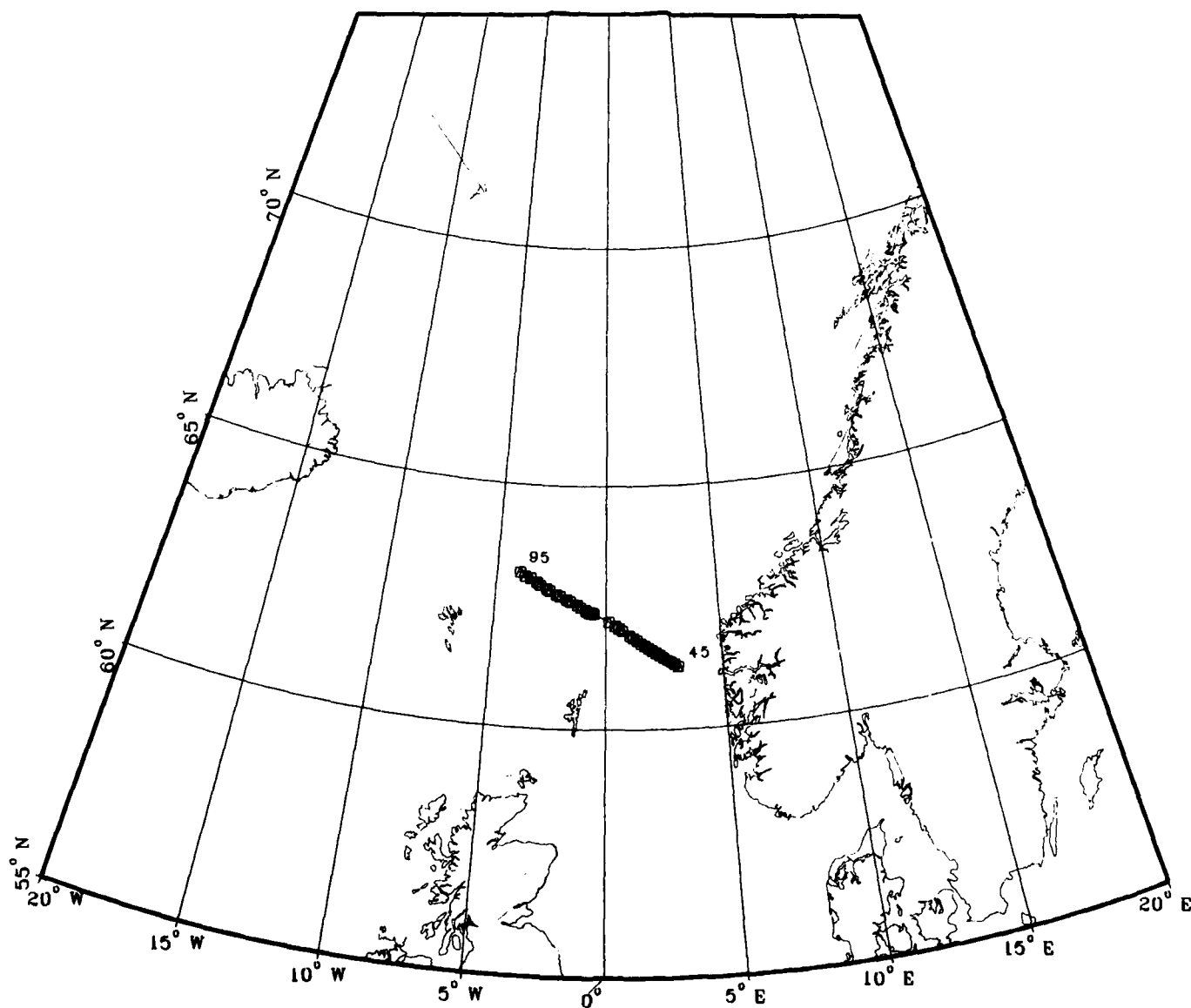


Figure 157. May 1950 station positions.

SOGNEFJORD SECTION
FILE - ICES\$1950PMA.DAT
T/S PLOT

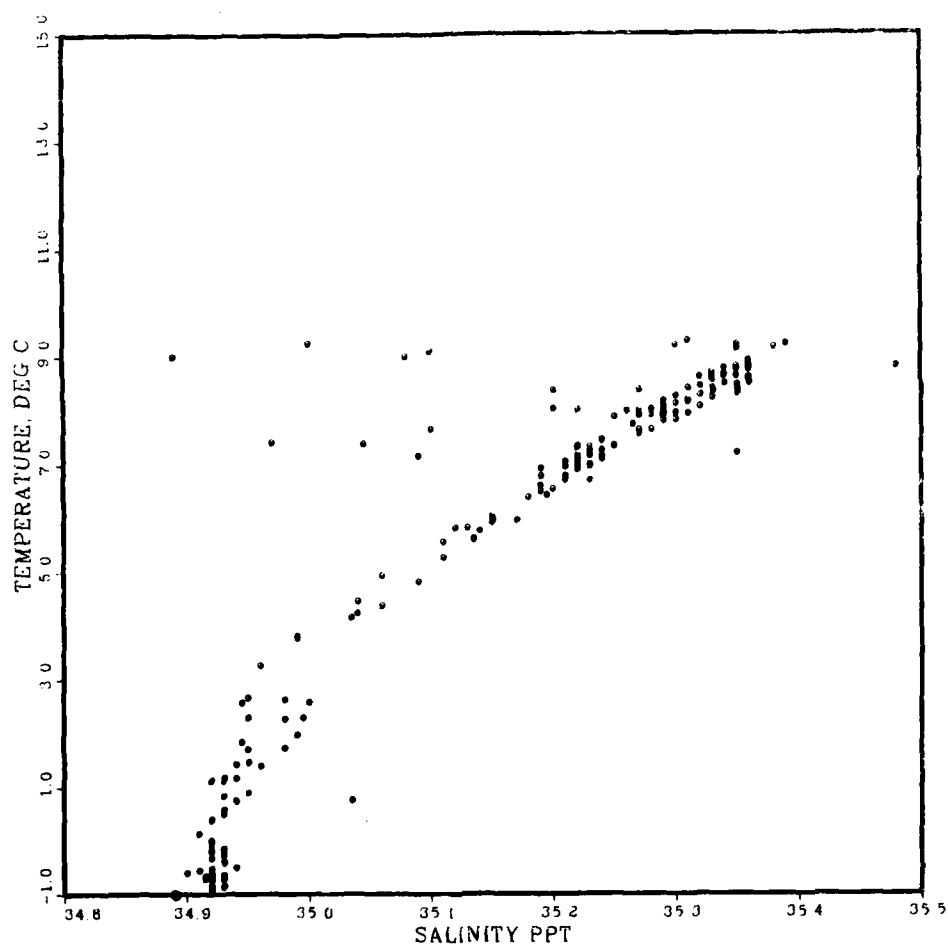


Figure 158. May 1950 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$1950PMA.DAT.1
 TEMPERATURE

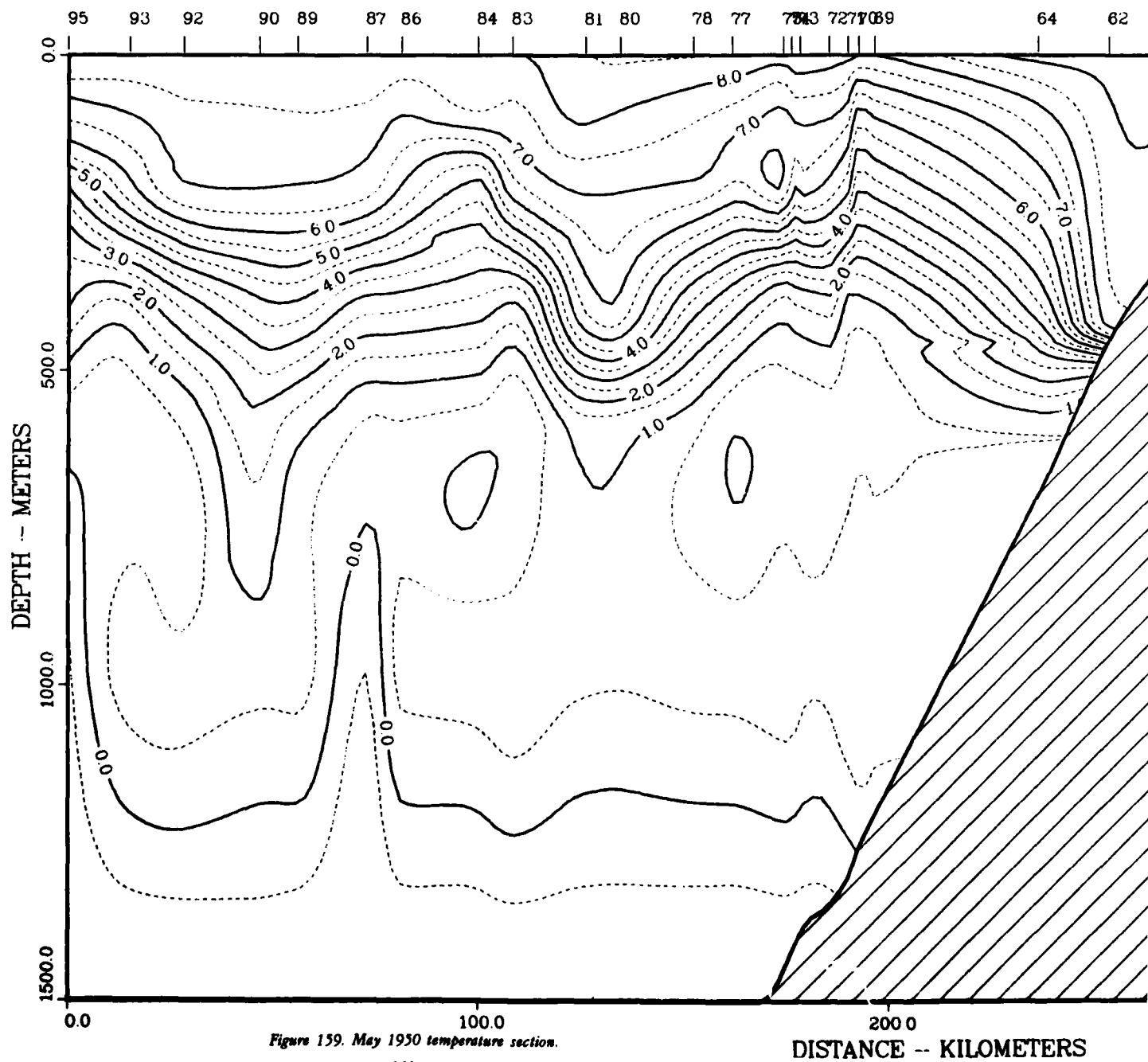
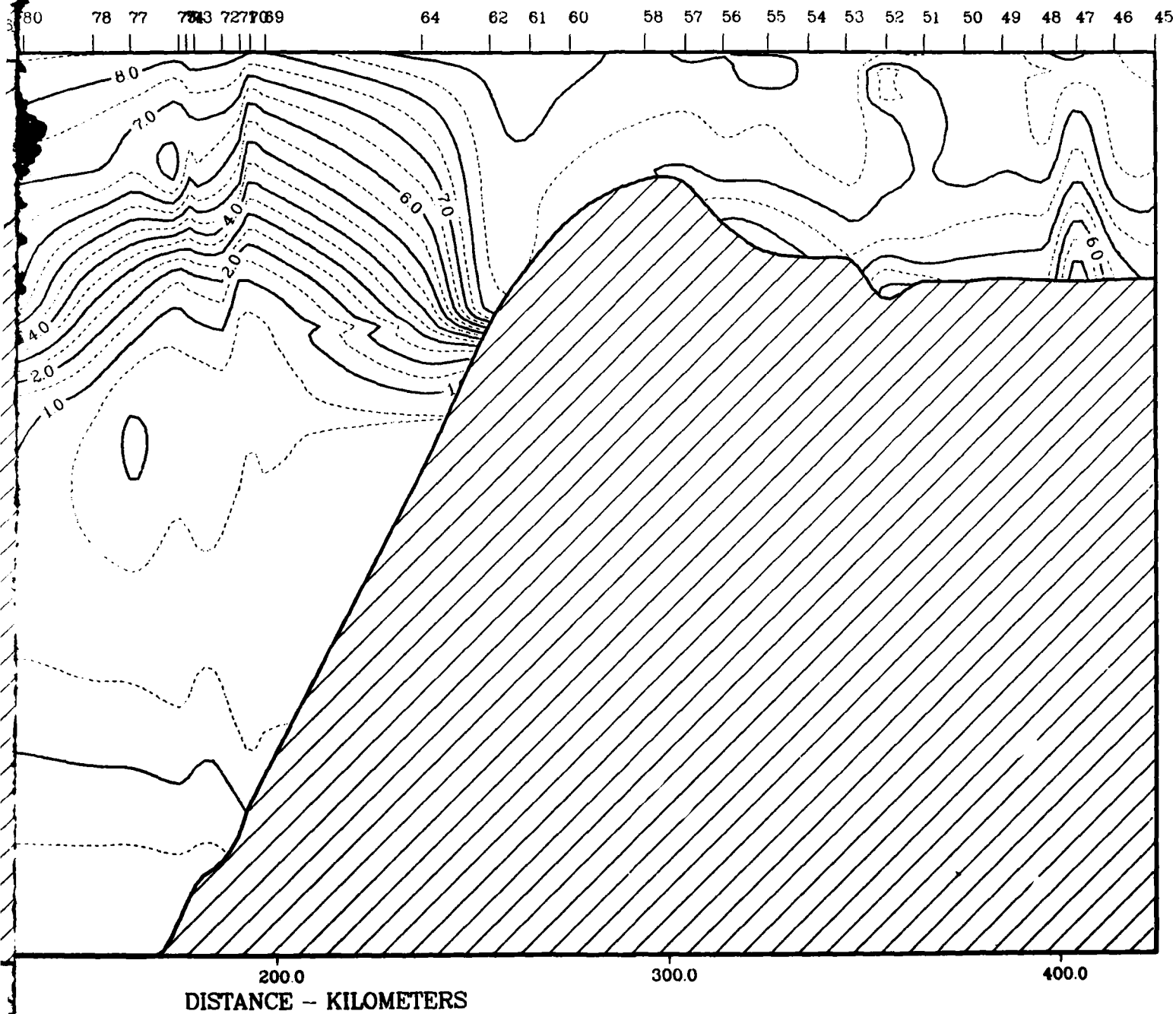


Figure 159. May 1950 temperature section.

SOGNEFJORD SECTION
FILE = ICES\$1950PMA.DAT.1
TEMPERATURE



SOGNEFJORD SECTION
 FILE = ICES\$ 1950PMA DAT:1
 SALINITY

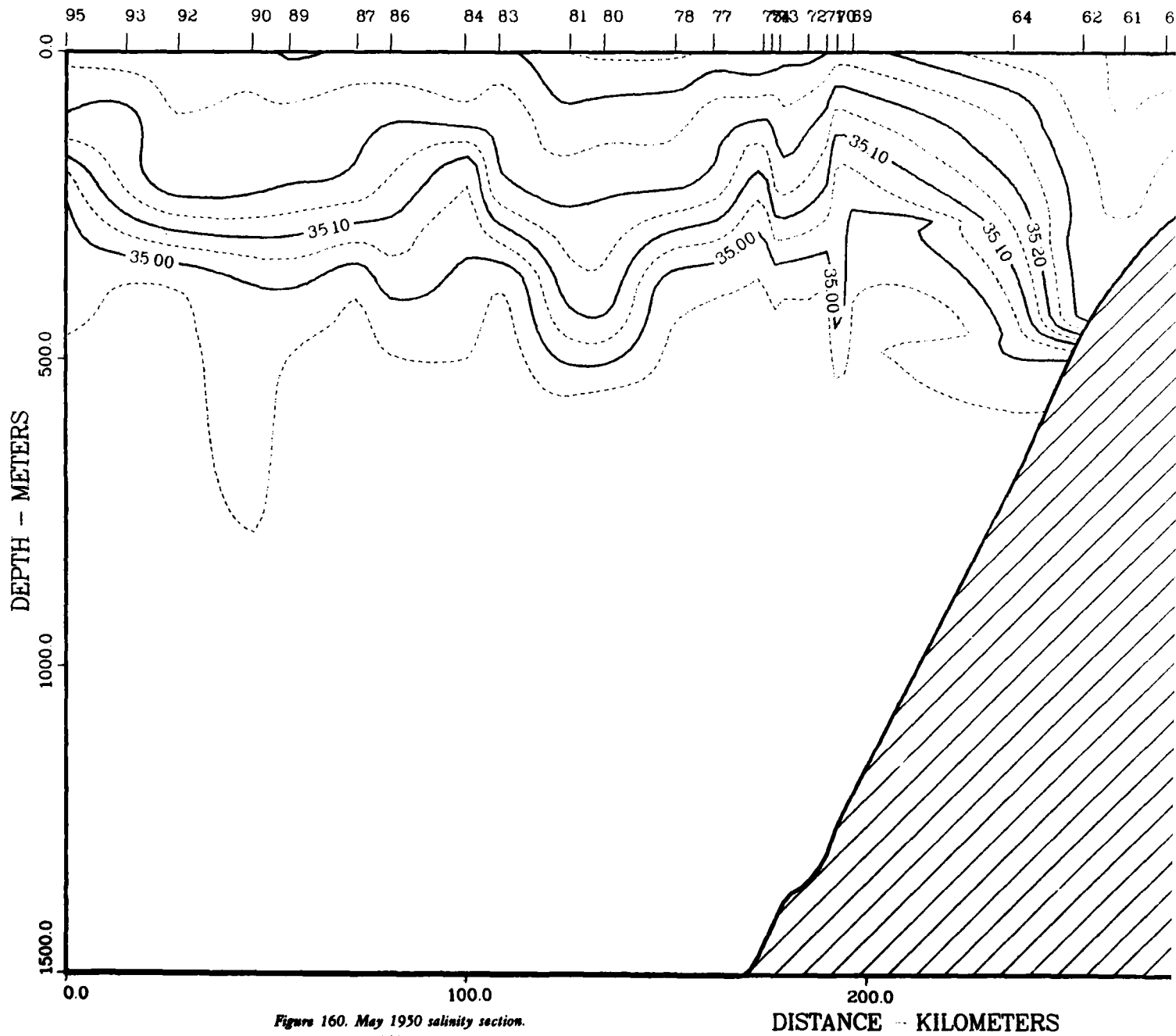
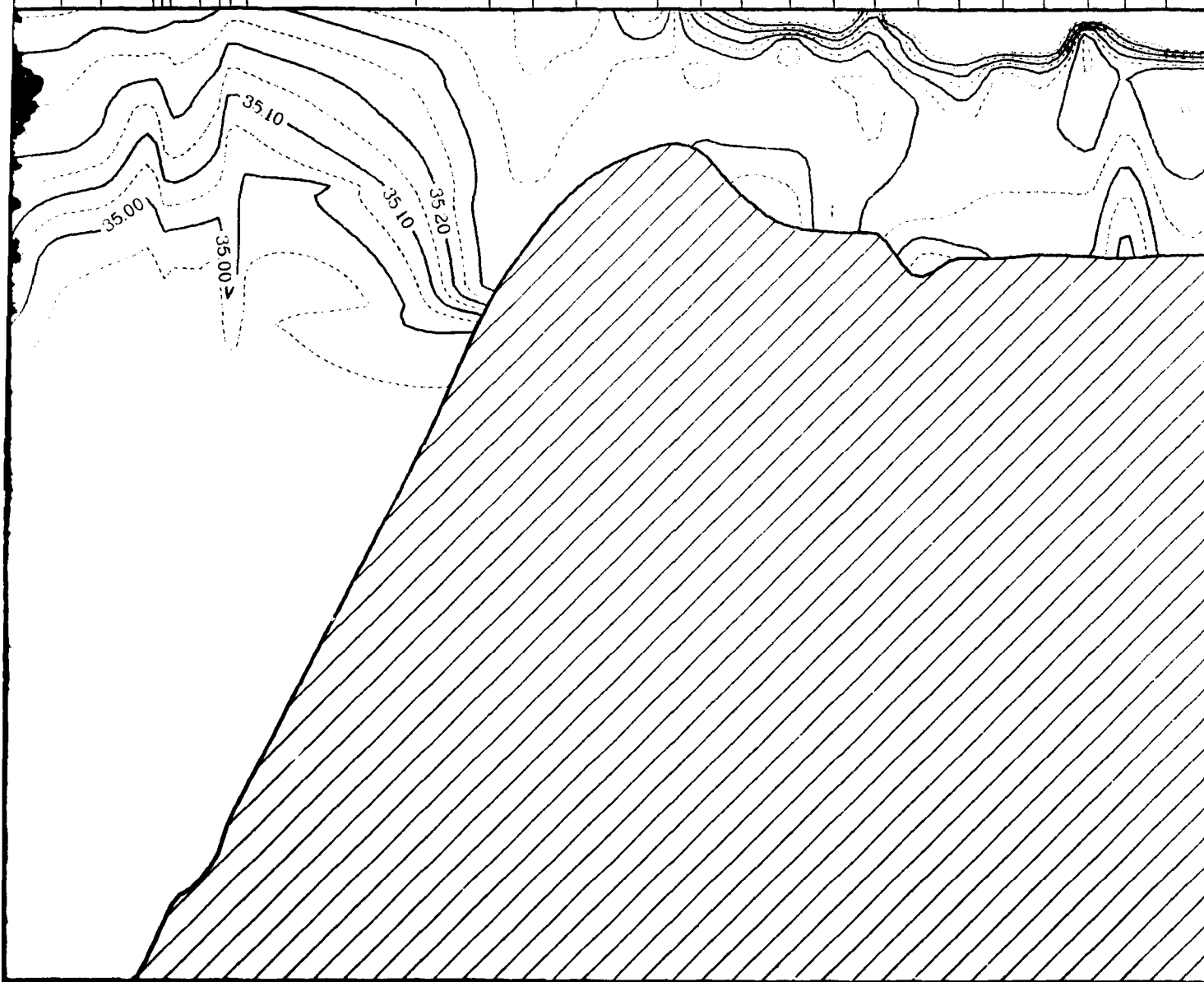


Figure 160. May 1950 salinity section.
 162

SOGNEFJORD SECTION
FILE = ICES\$1950PMA.DAT.1
SALINITY

78 77 76 75 74 73 72 71 70 69 64 62 61 60 58 57 56 55 54 53 52 51 50 49 48 47 46 45



200.0
DISTANCE -- KILOMETERS

300.0

400.0

2

ICES\$:1950GJU.DAT

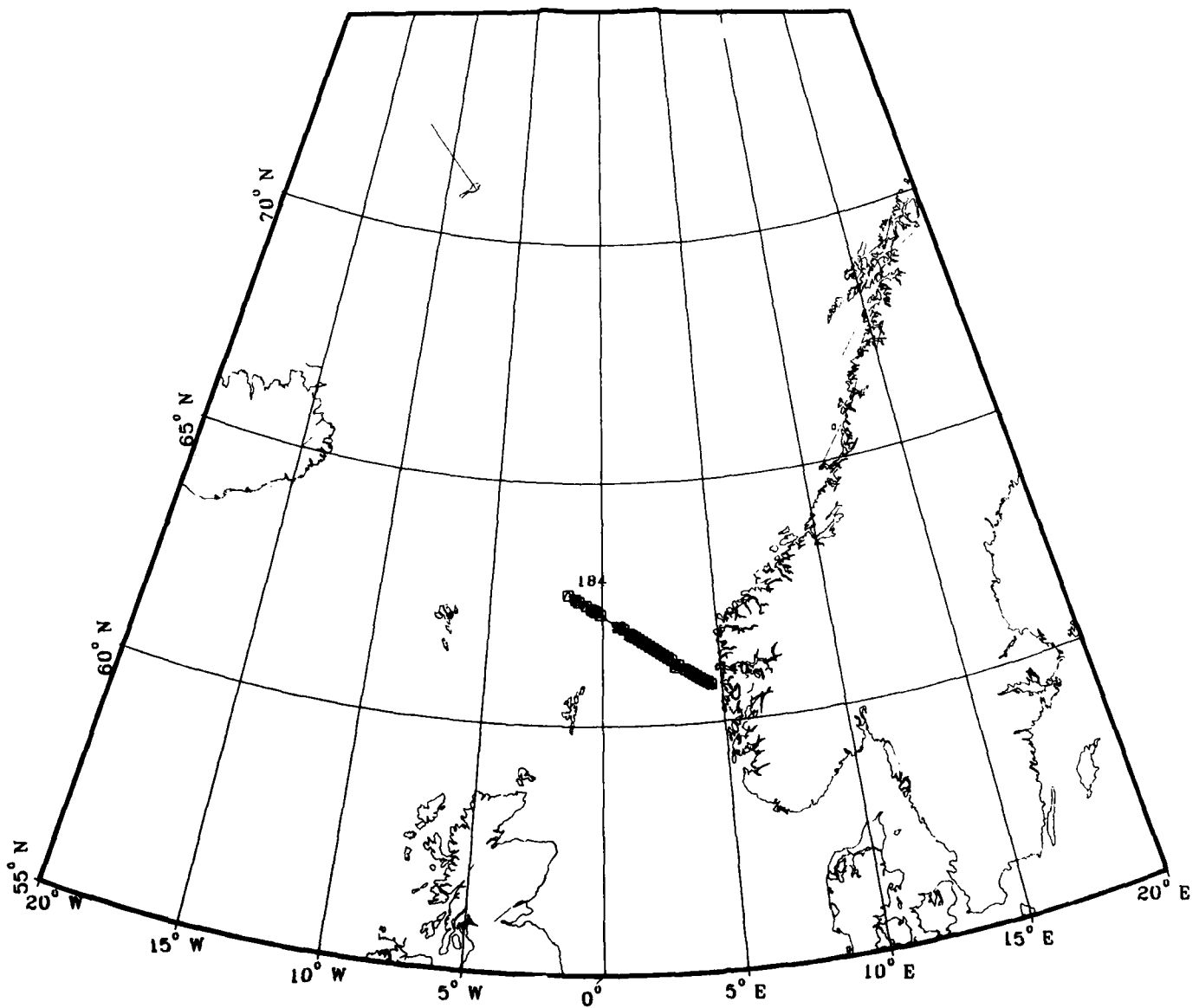


Figure 161. July 1950 station positions.

SOCNETFORD SECTION
FILE : ICES\$1950GJU.DAT
T/S PLOT

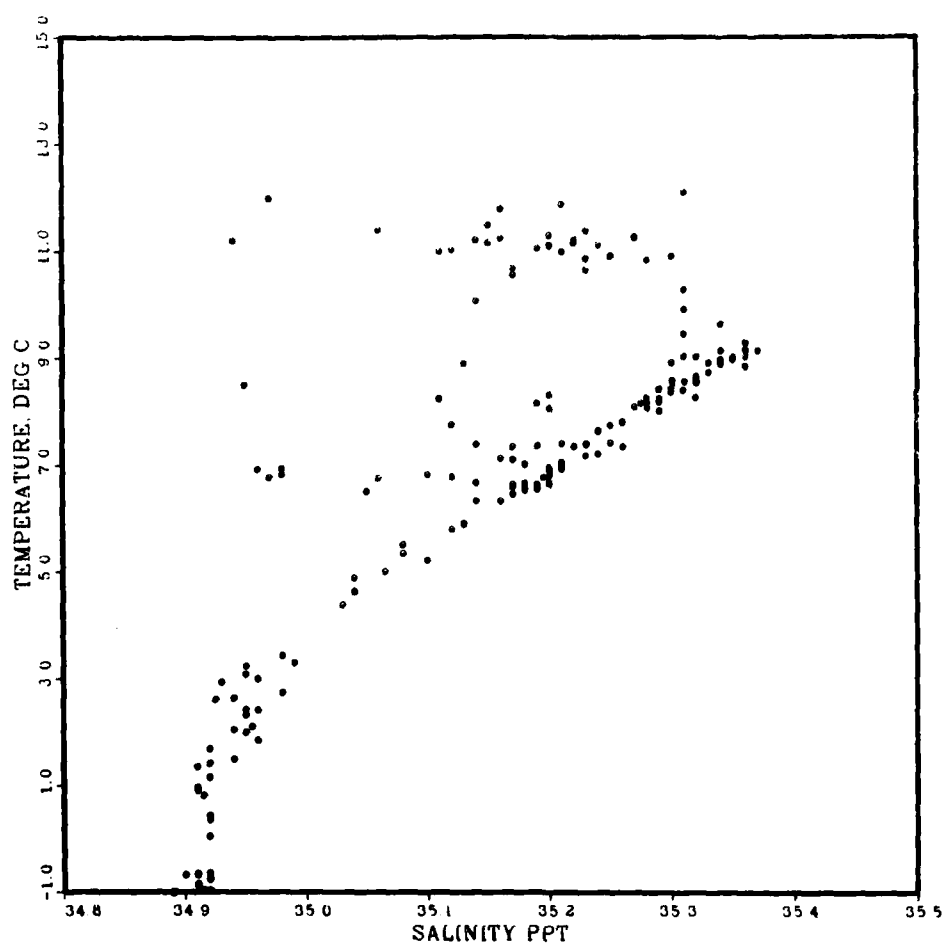


Figure 162. July 1950 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$1950GJU.DAT:1
 TEMPERATURE

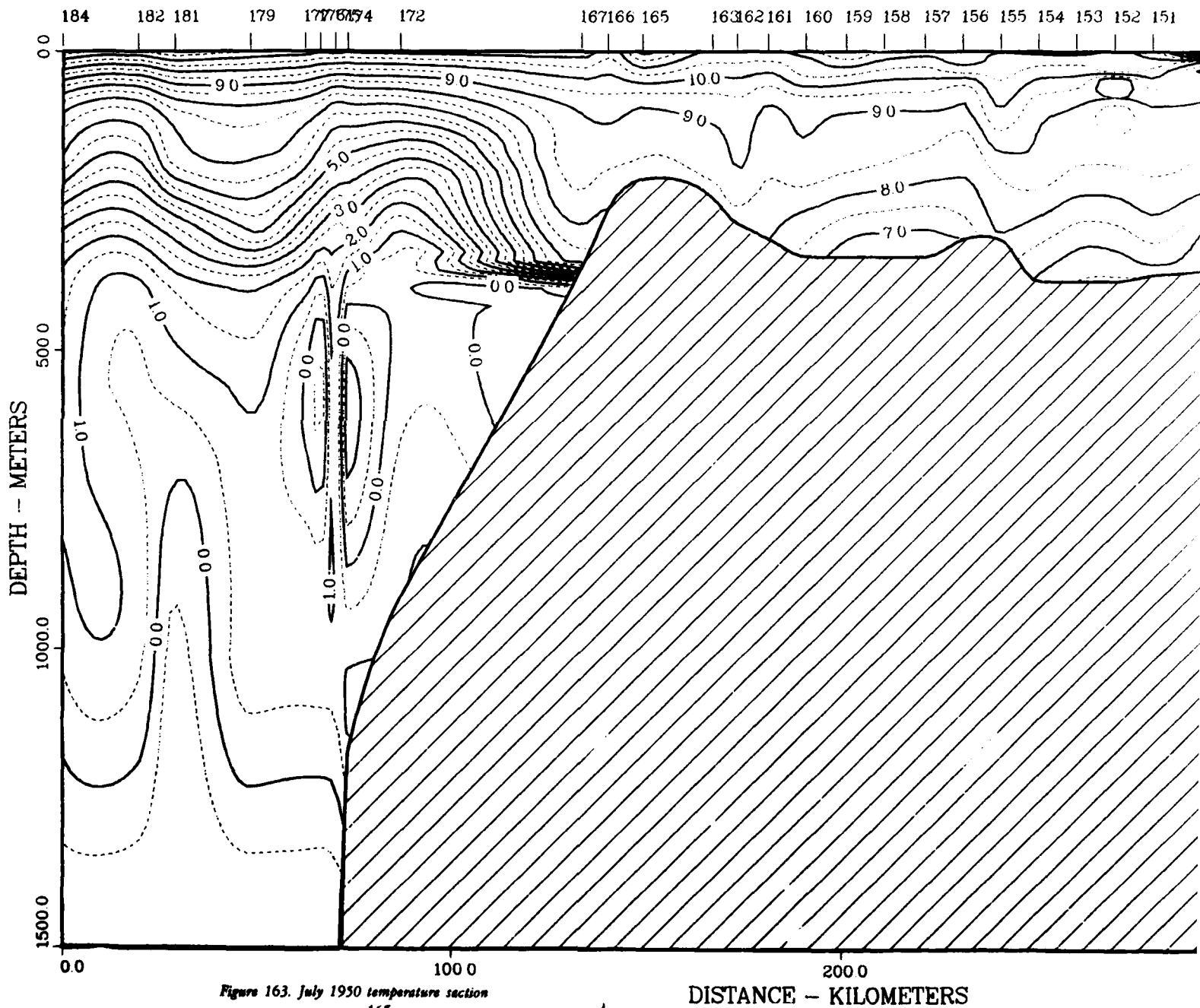
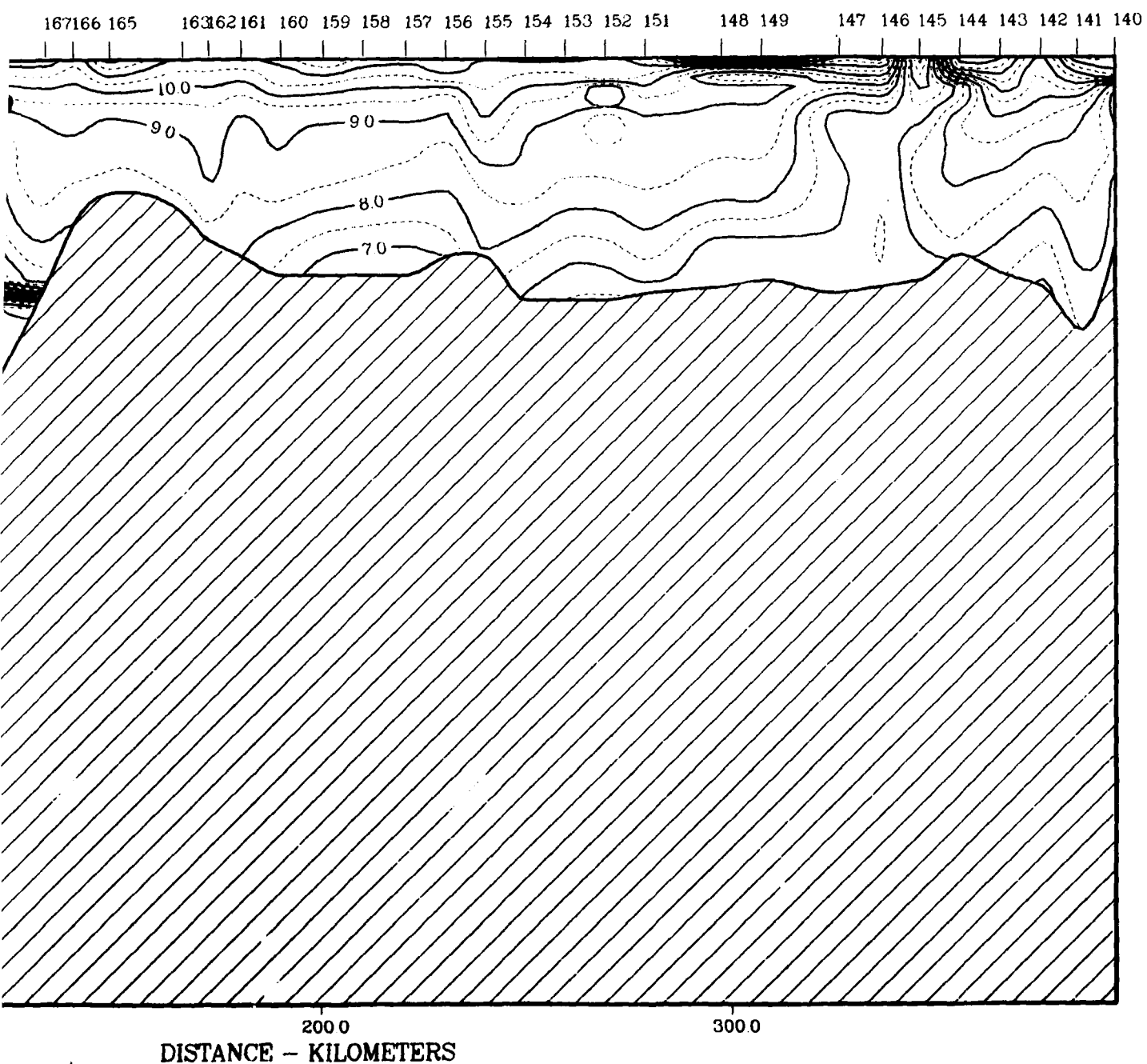


Figure 163. July 1950 temperature section
 165

SOGNEFJORD SECTION

FILE = ICES\$1950GJU.DAT:1
TEMPERATURE



SOGNEFJORD SECTION

FILE = ICES\$ 1950GJU DAT 1
SALINITY

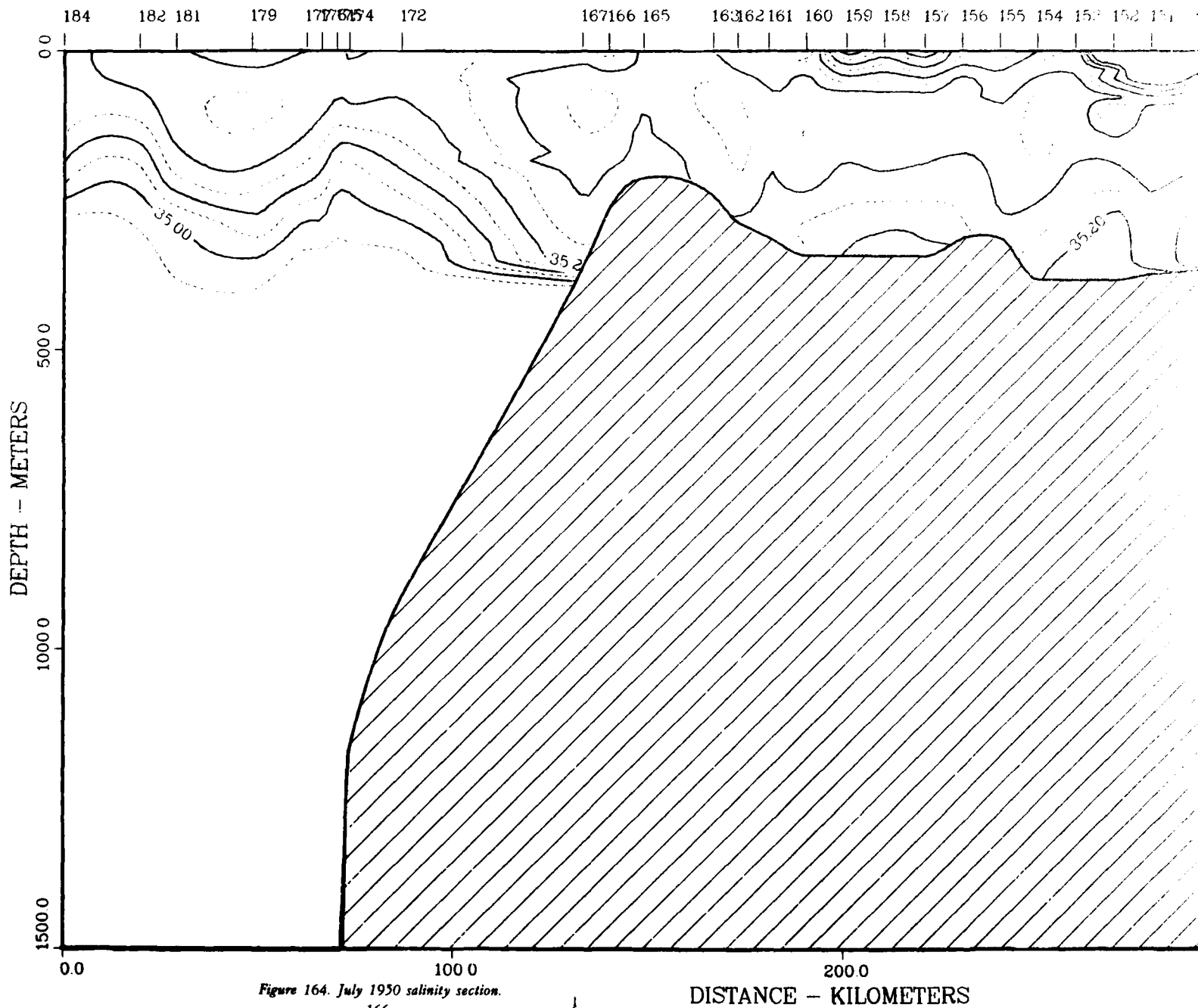
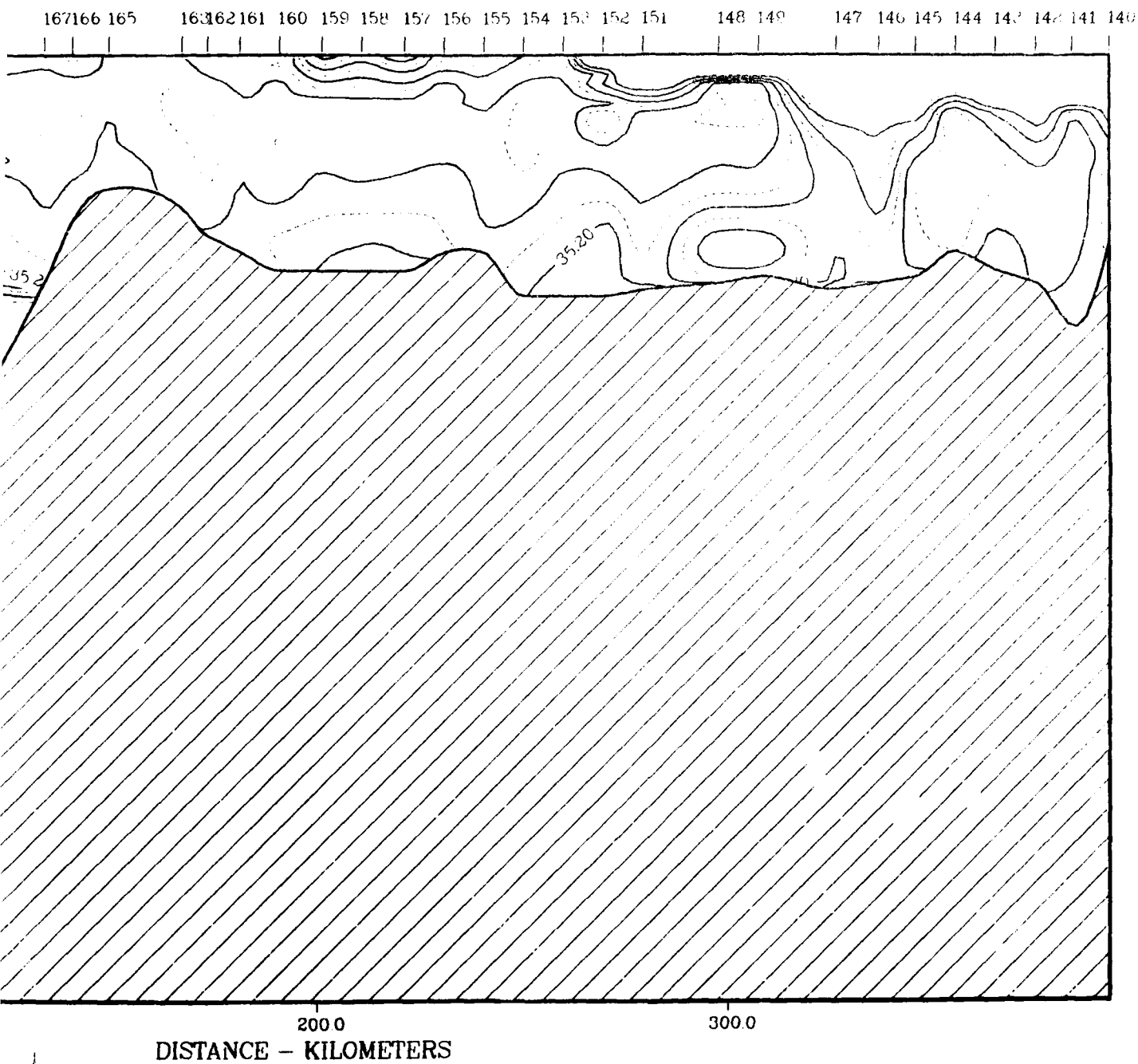


Figure 164. July 1950 salinity section.
166

DISTANCE - KILOMETERS

SOGNEFJORD SECTION
FILE - ICES 1950GJU DAT 1
SALINITY



ICES\$:1951QMA.DAT

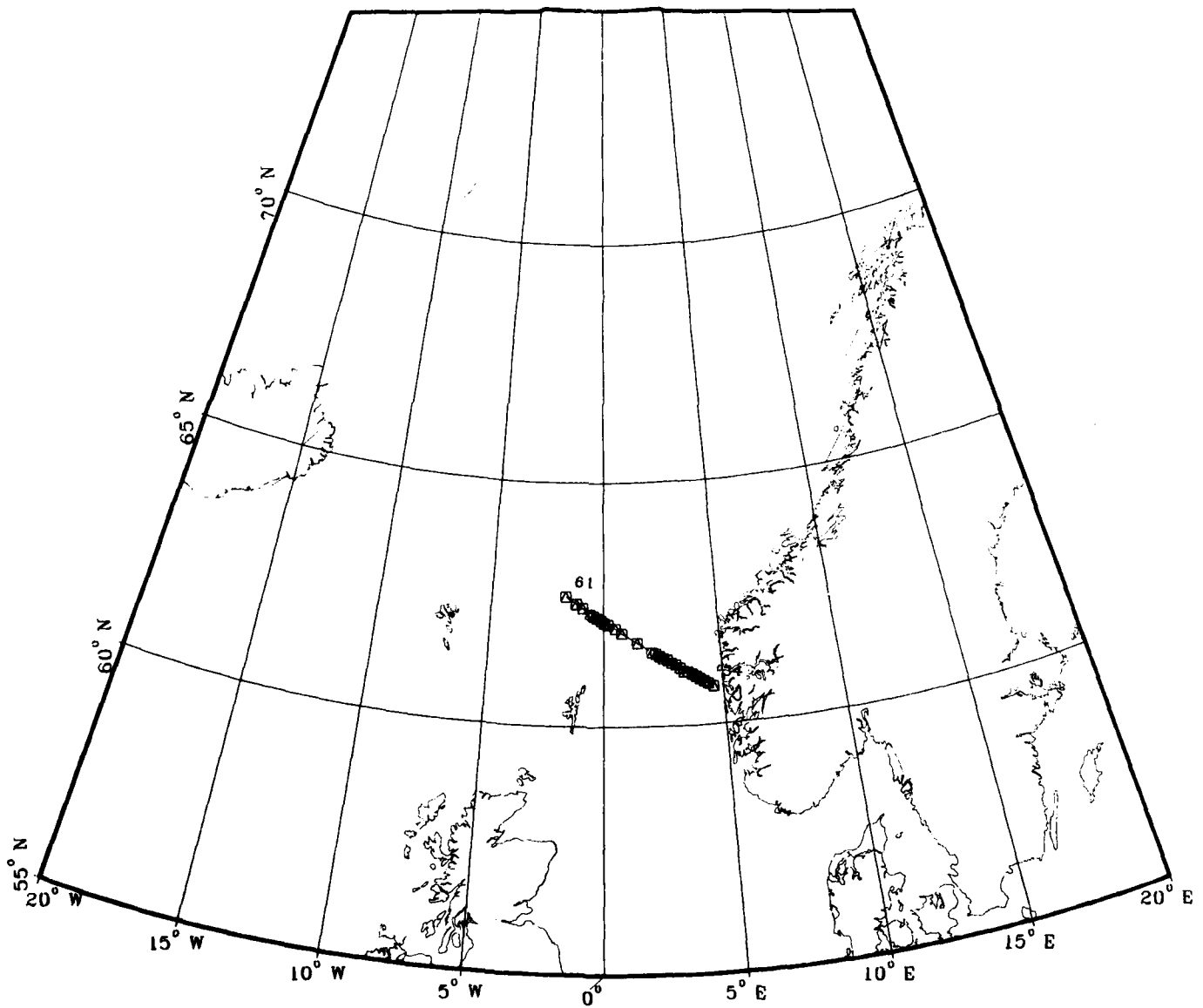


Figure 165. May 1951 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1951QMA.DAT
T/S PLOT

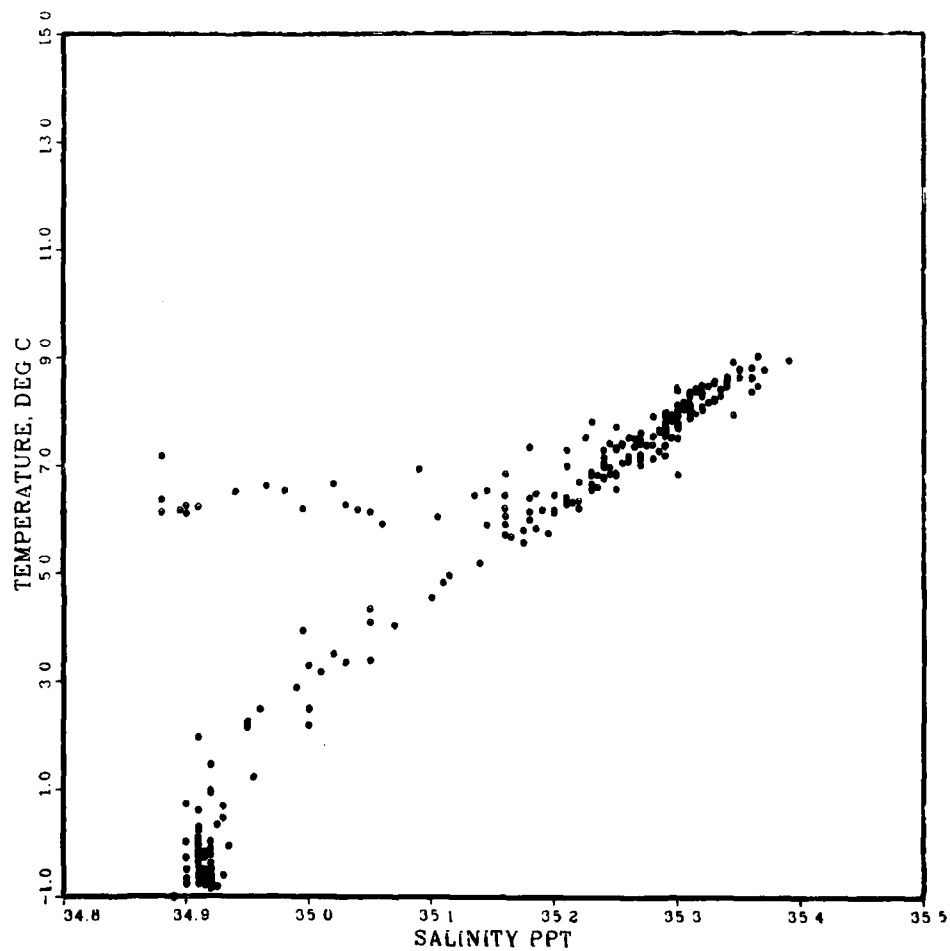


Figure 166. May 1951 temperature/salinity diagram.

SOGNEFJORD
FILE = ICES 1951
TEMPERATURE

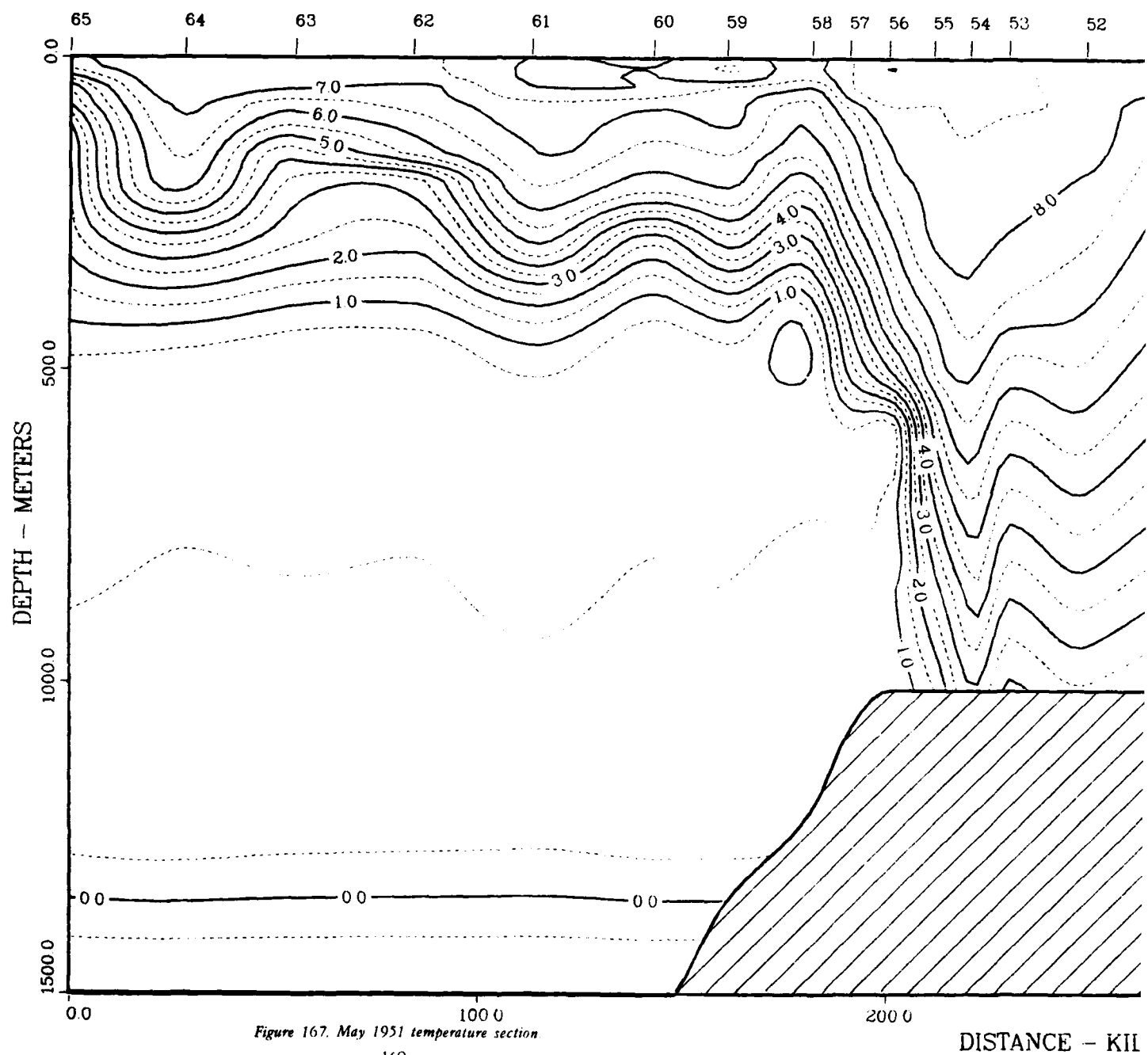
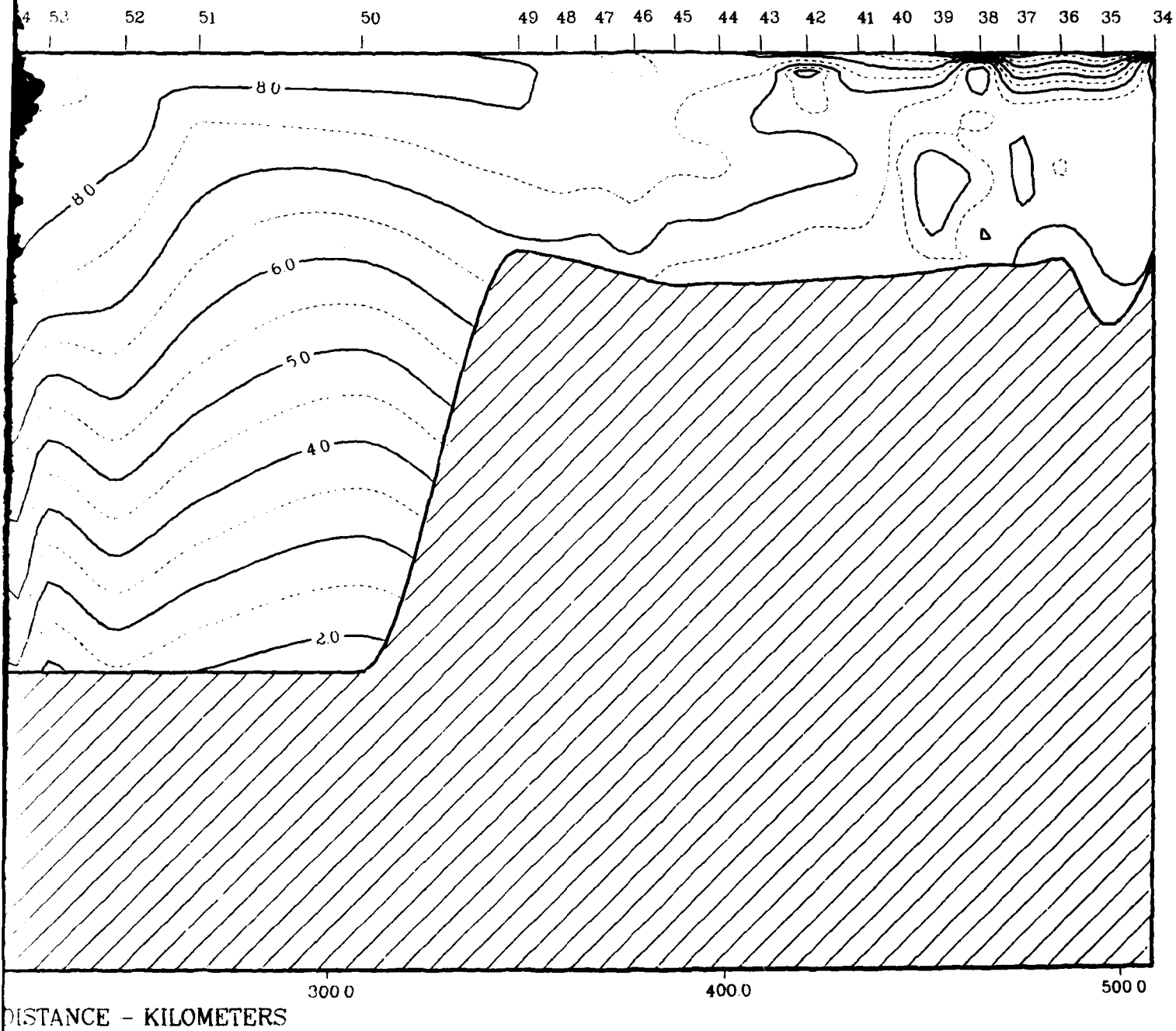


Figure 167. May 1951 temperature section.

BOGNEFJORD SECTION
FILE = ICES91951QMA DAT 1
TEMPERATURE



SOGNEFJORD S.
FILE = ICES\$ 1951Q1
SALINITY

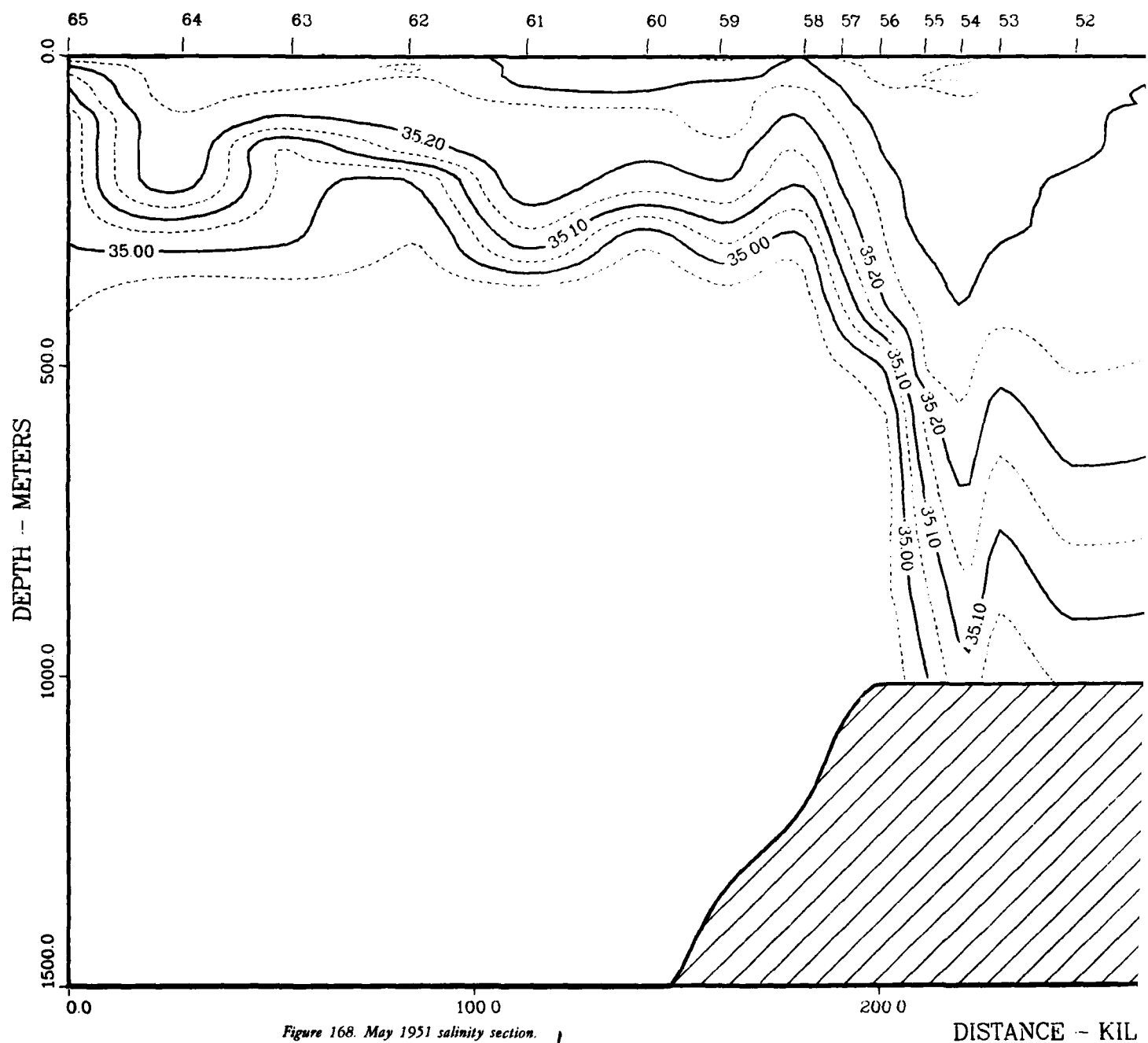
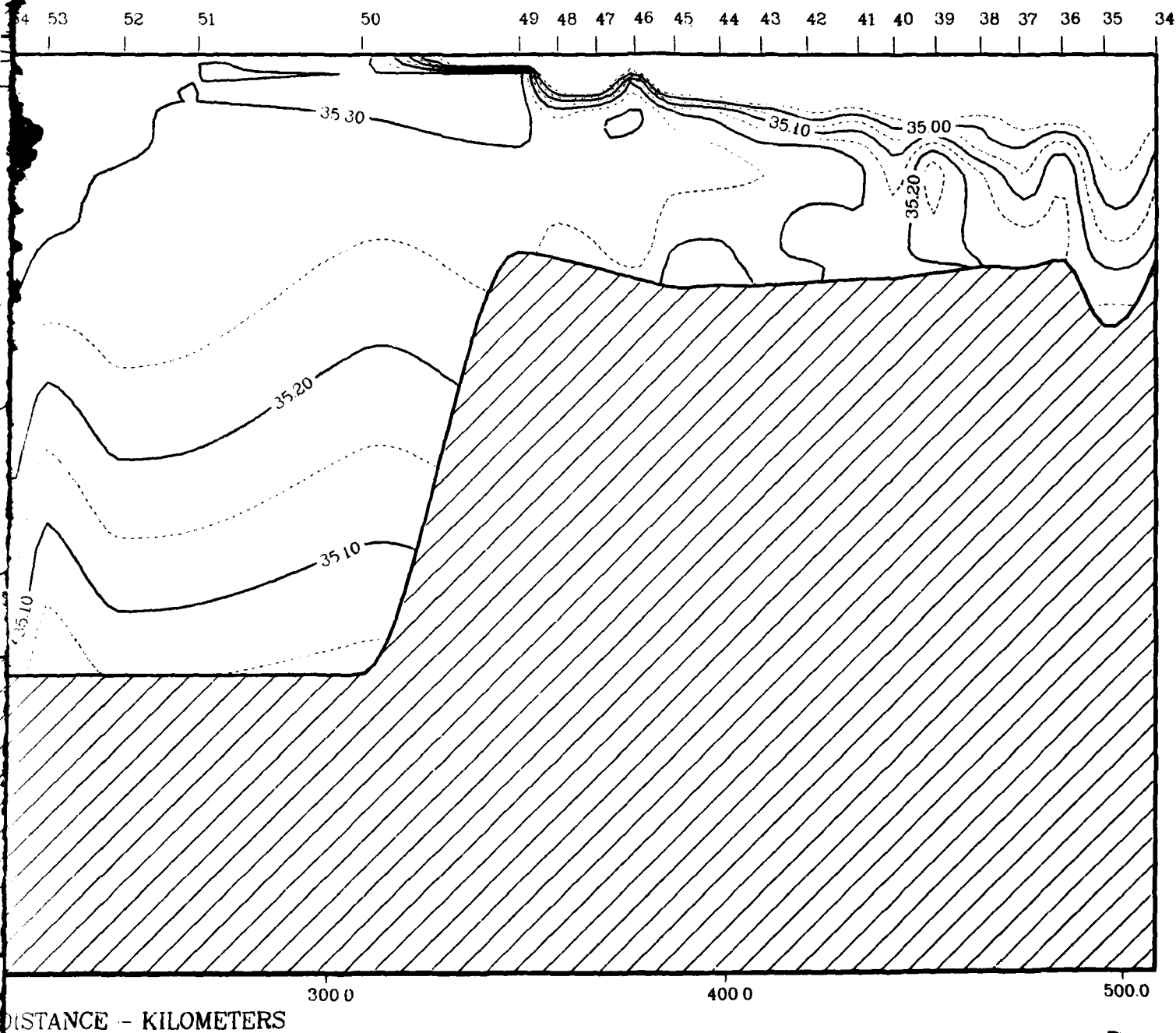


Figure 168. May 1951 salinity section.

SOGNEFJORD SECTION
FILE = ICES\$ 1951QMA.DAT1
SALINITY



ICES\$:1952VMA.DAT

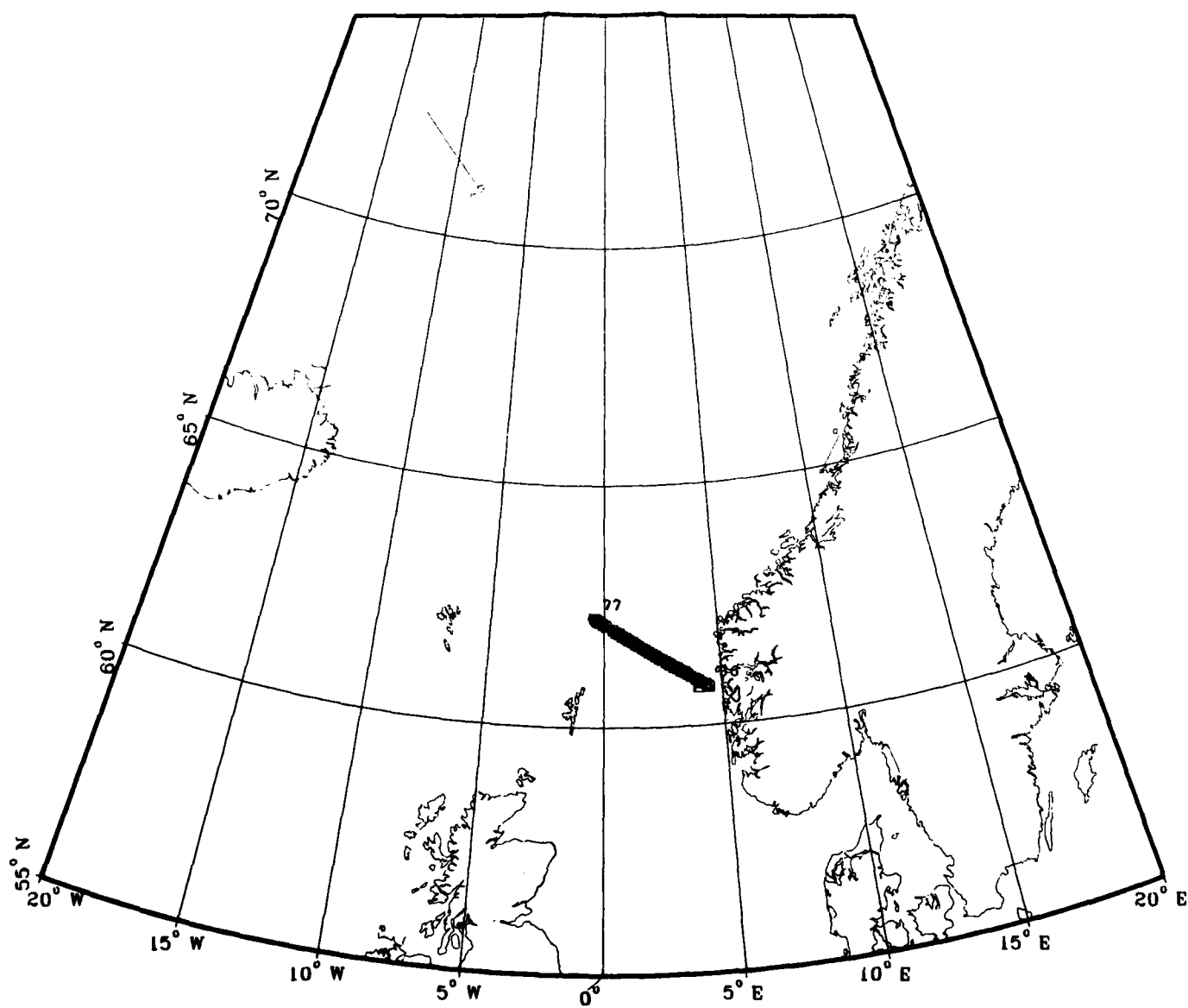


Figure 169. May 1952 station positions.

SOGNEFJORD SECTION
FILE = ICES\$:1952VMA.DAT
T/S PLOT

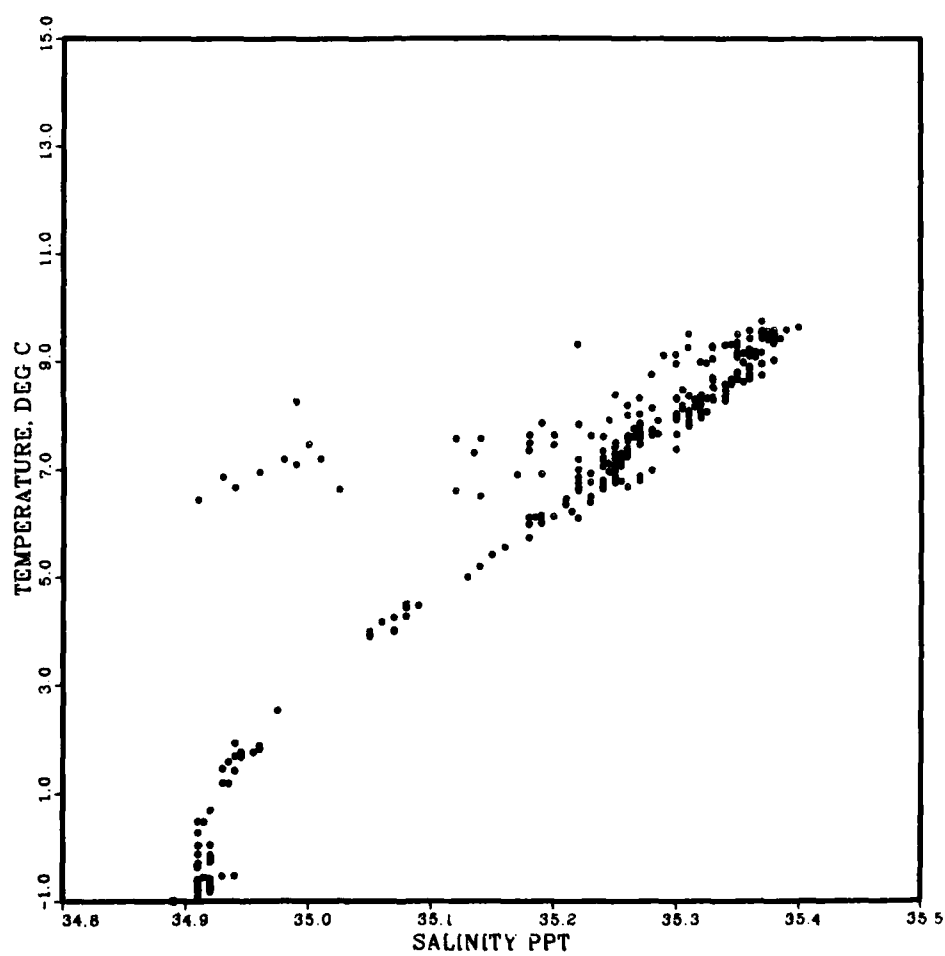


Figure 170. May 1952 temperature/salinity diagram.

SOGNEFJORD SECTION
FILE - ICES4:1952VMA.DAT
TEMPERATURE

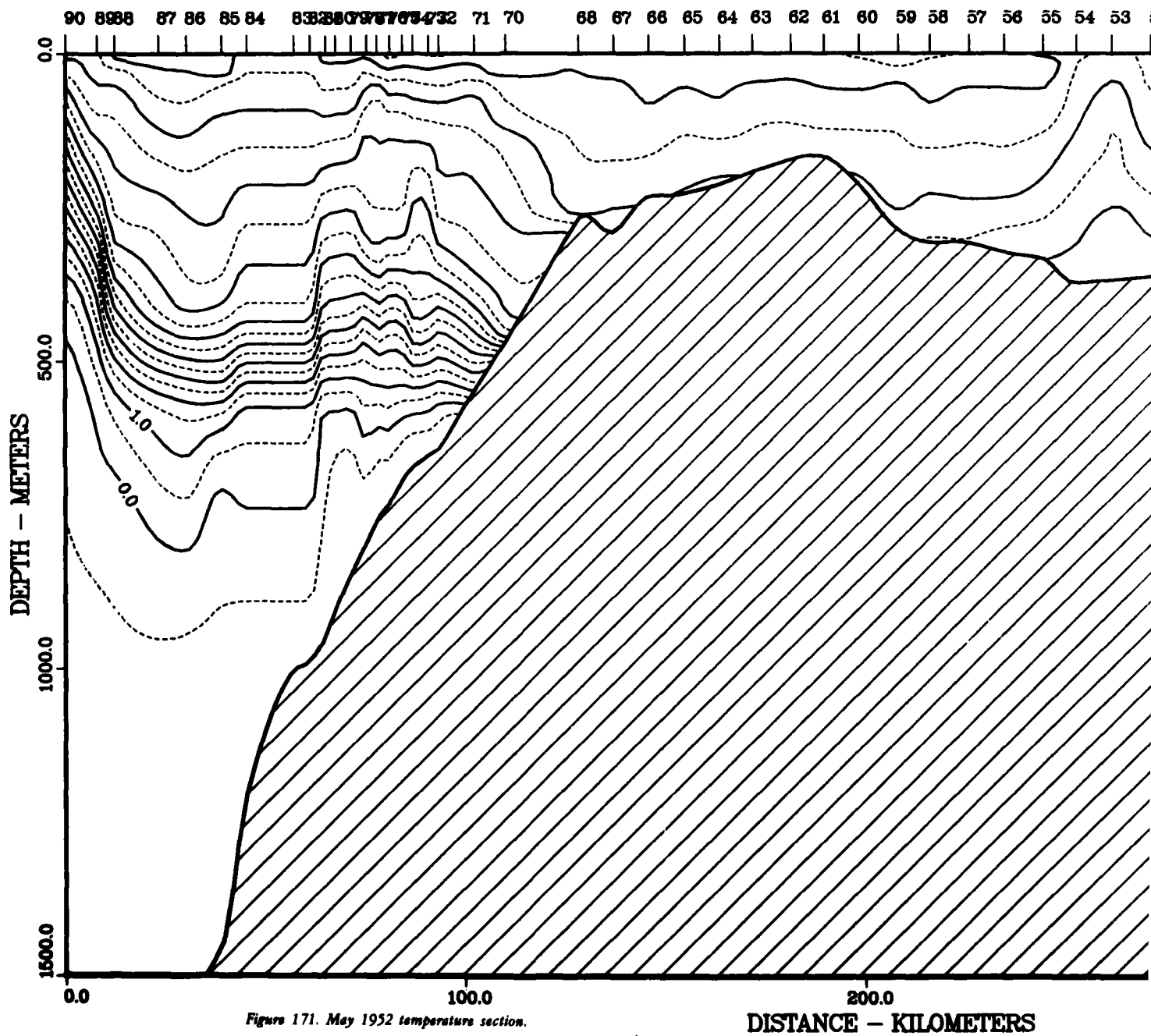
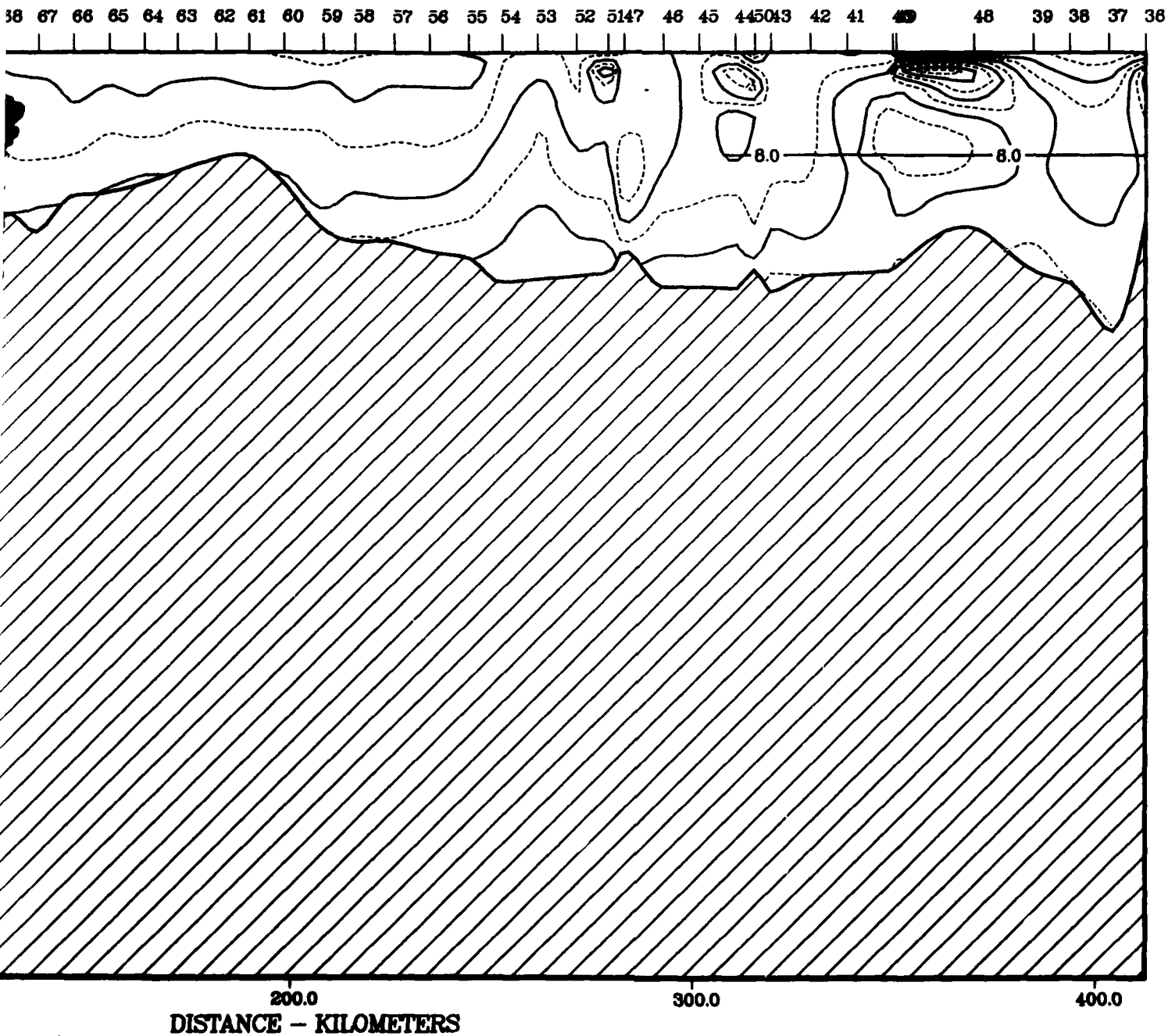


Figure 171. May 1952 temperature section.

SOGNEFJORD SECTION
FILE = ICES4:1952VMA.DAT
TEMPERATURE



SOGNEFJORD SECTION
 FILE - ICES4:1952VMA.DAT
 SALINITY

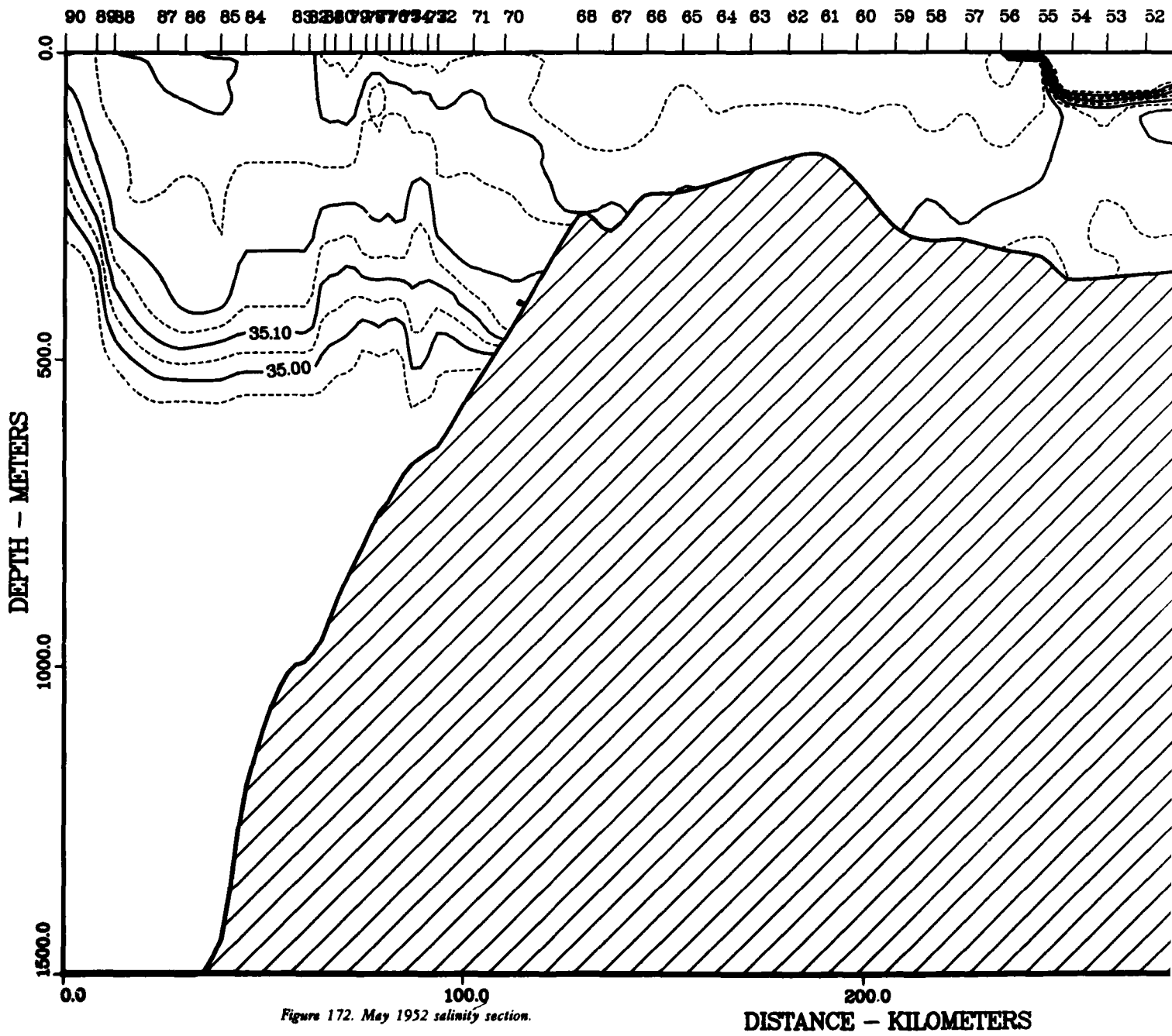
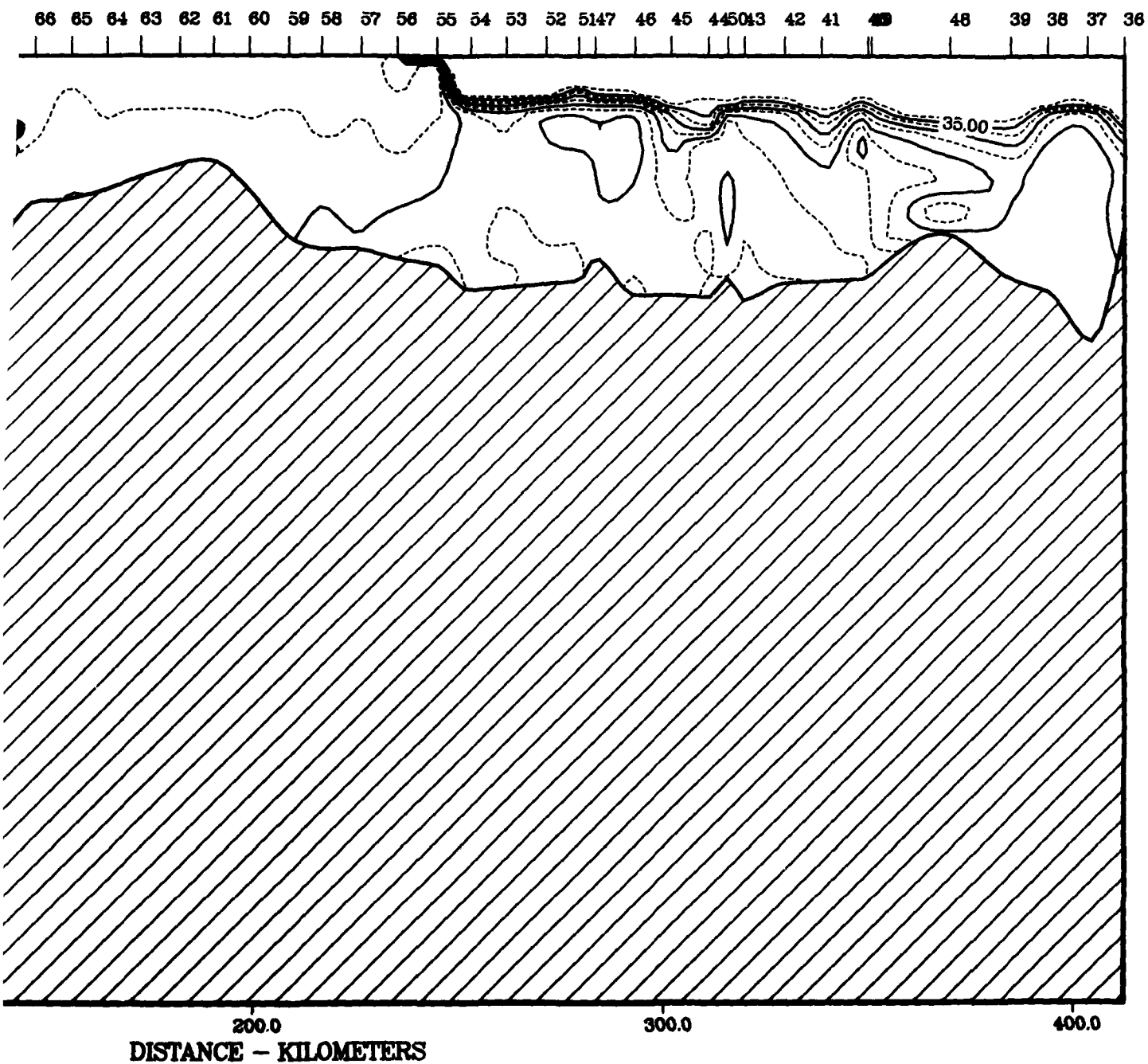


Figure 172. May 1952 salinity section.

SOGNEFJORD SECTION
FILE - ICES41952VMA.DAT
SALINITY



2

ICES\$:1952SJU.DAT

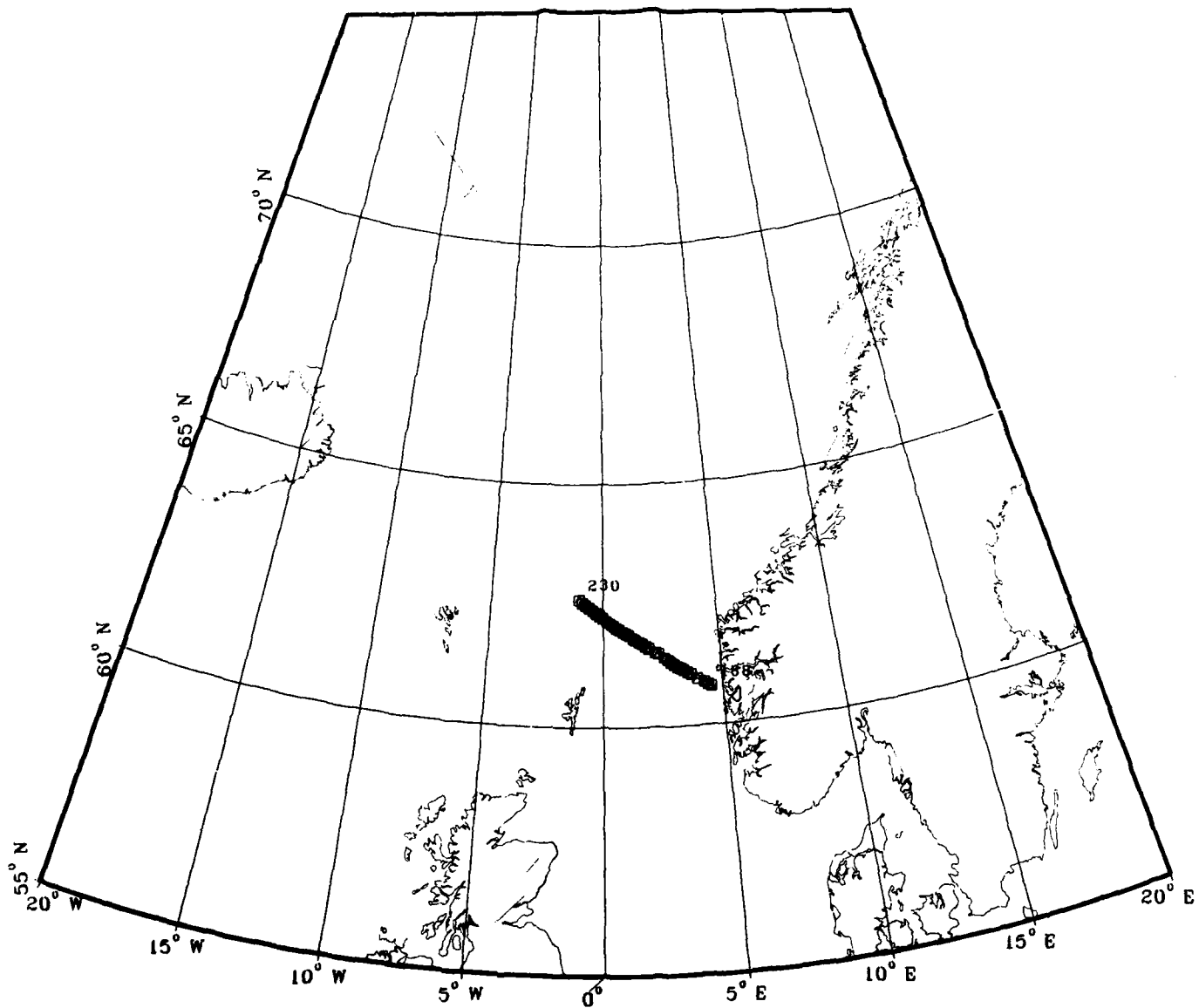


Figure 173. July 1952 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1952SJU.DAT
T/S PLOT

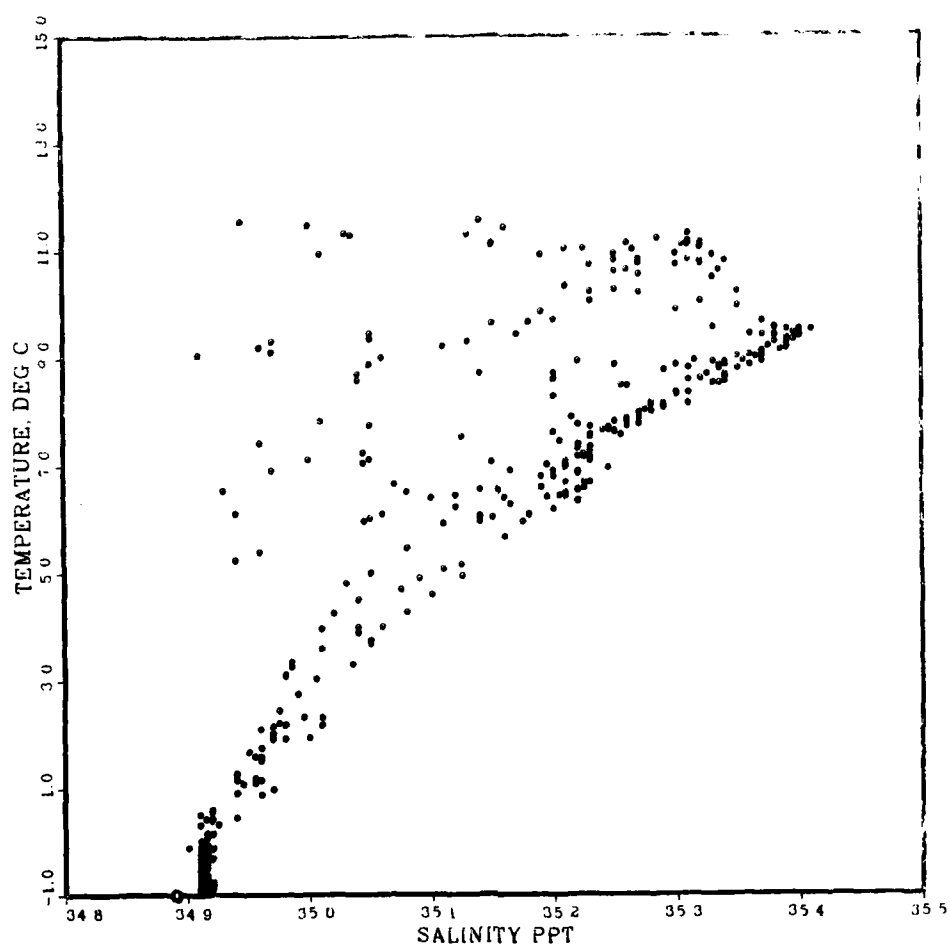


Figure 174. July 1952 temperature/salinity diagram.

SOGNEFJORD SECTION
FILE = ICES919629JU.DAT
TEMPERATURE

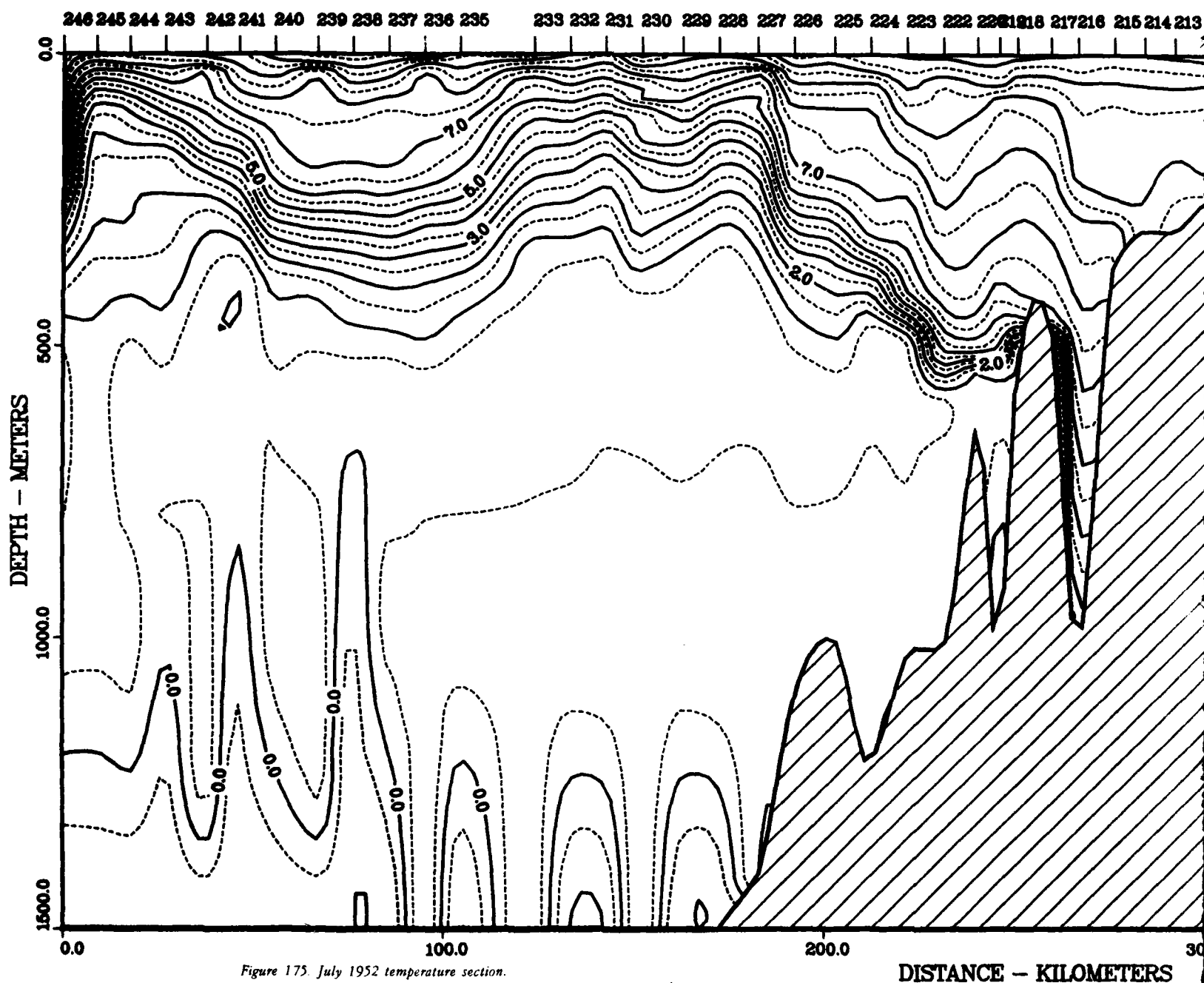
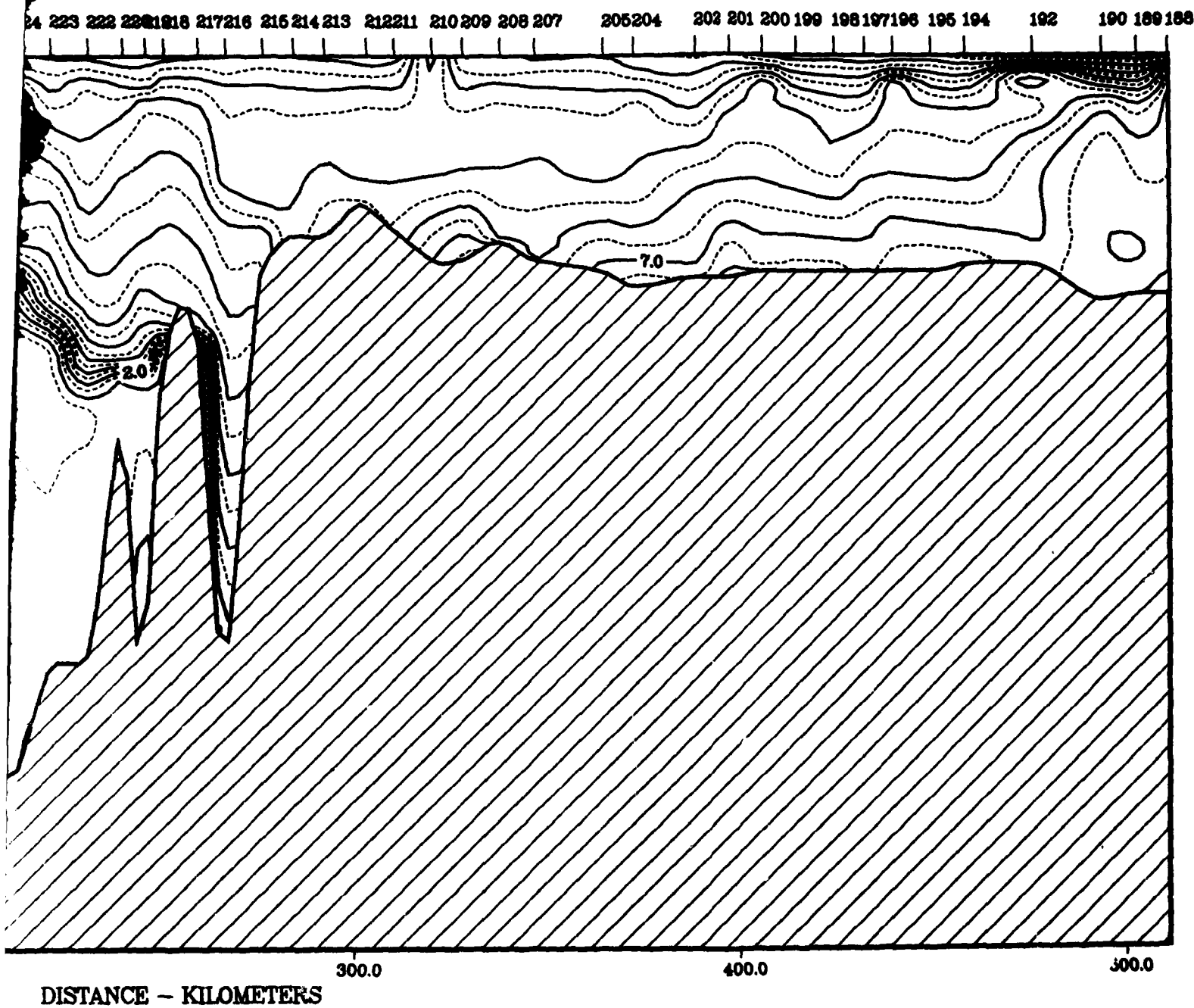


Figure 175. July 1952 temperature section.

SOGNEFJORD SECTION
FILE - ICES819623JU.DAT
TEMPERATURE



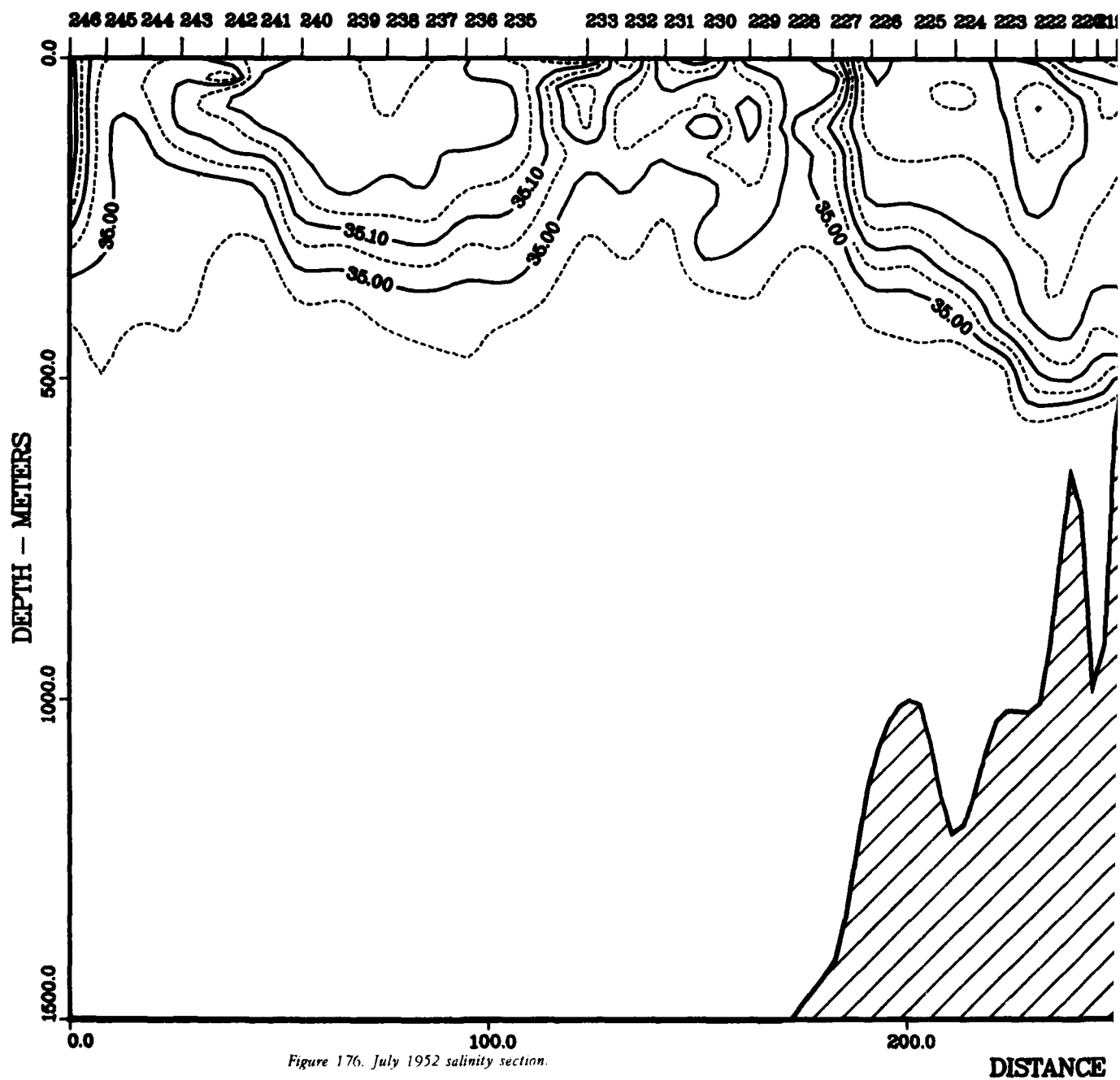


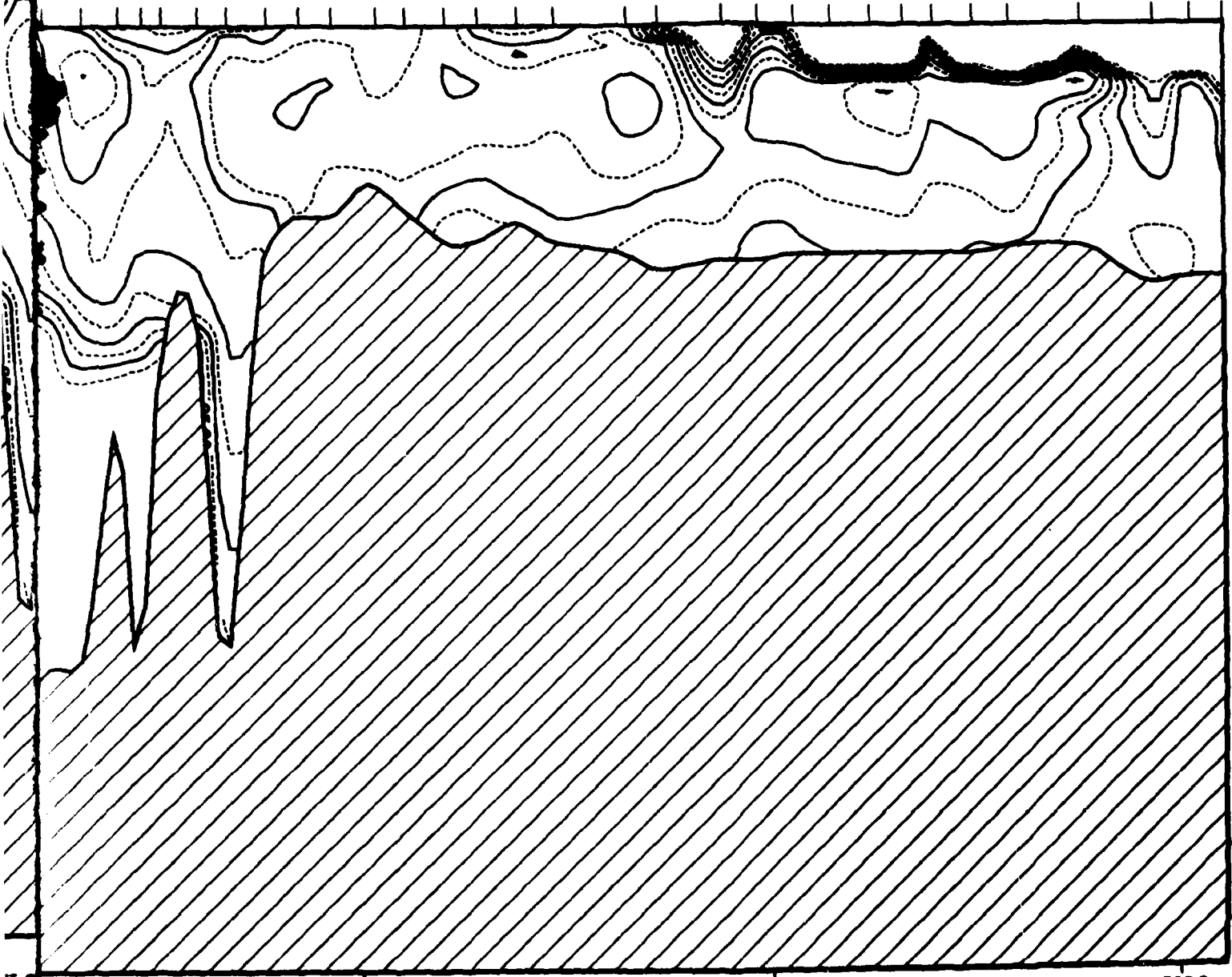
Figure 176. July 1952 salinity section.

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Y

SOGNEFJORD SECTION
FILE - ICES-19623JU.DAT
SALINITY

172

223 222 220 218 217 216 215 214 213 212 211 210 209 208 207 206 204 202 201 200 199 198 197 196 195 194 192 190 189 188



180

DISTANCE - KILOMETERS 300.0 400.0 500.0

2

ICES\$:1952RAU.DAT

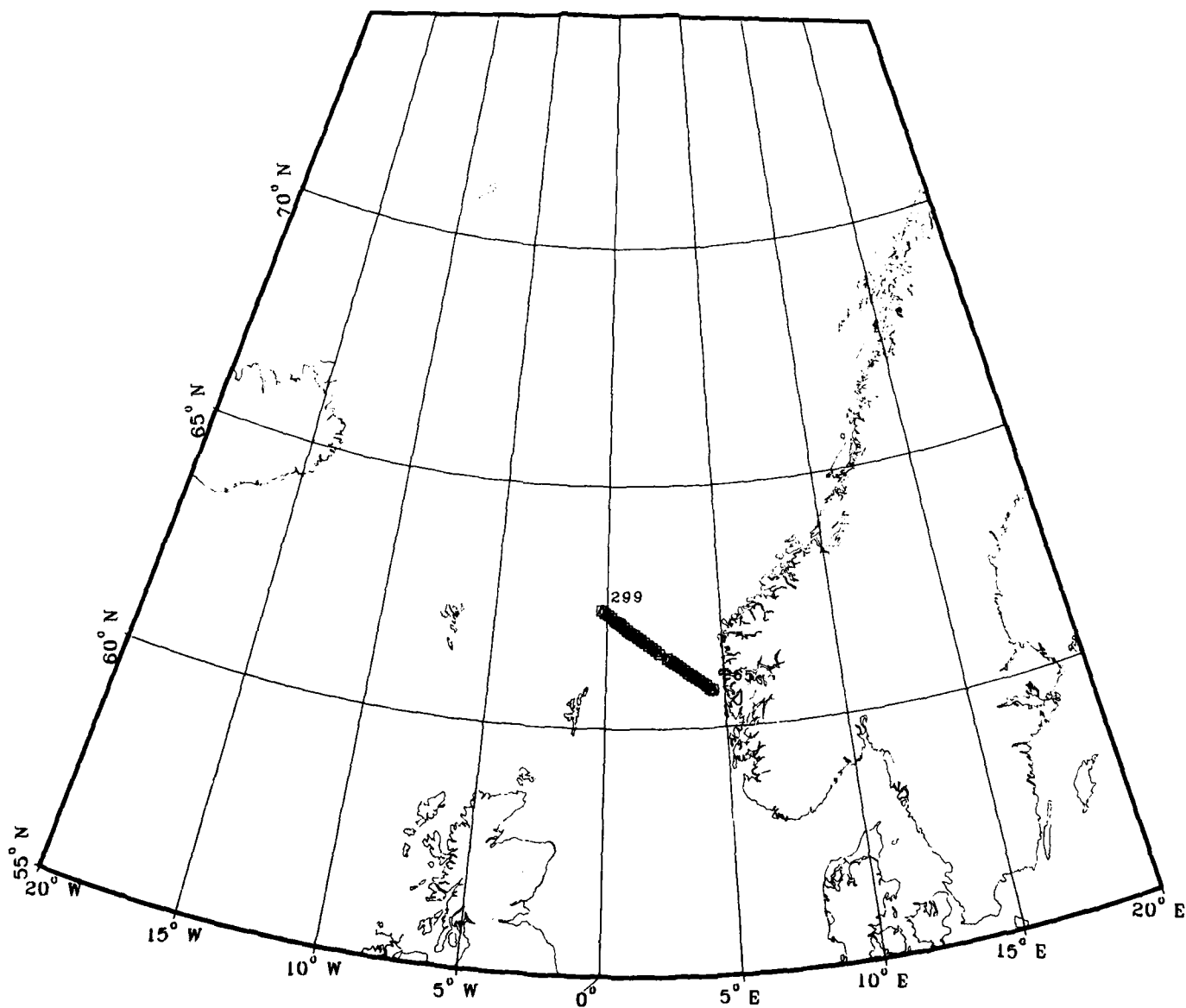


Figure 177. August 1952 station positions.

SOCNEFJORD SECTION
FILE = ICES\$1952RAU.DAT
T/S PLOT

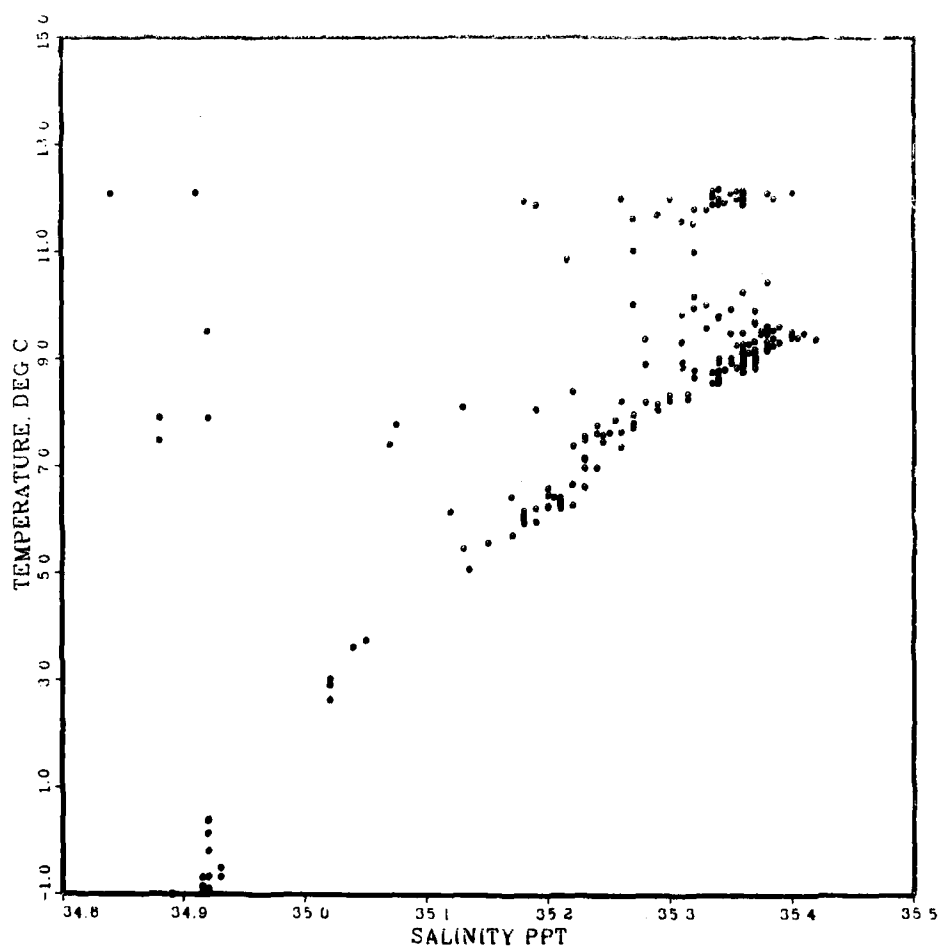


Figure 178. August 1952 temperature/salinity diagram.

SOGNEFJORD SECTION
FILE = ICES8:1952RAU.DAT
TEMPERATURE

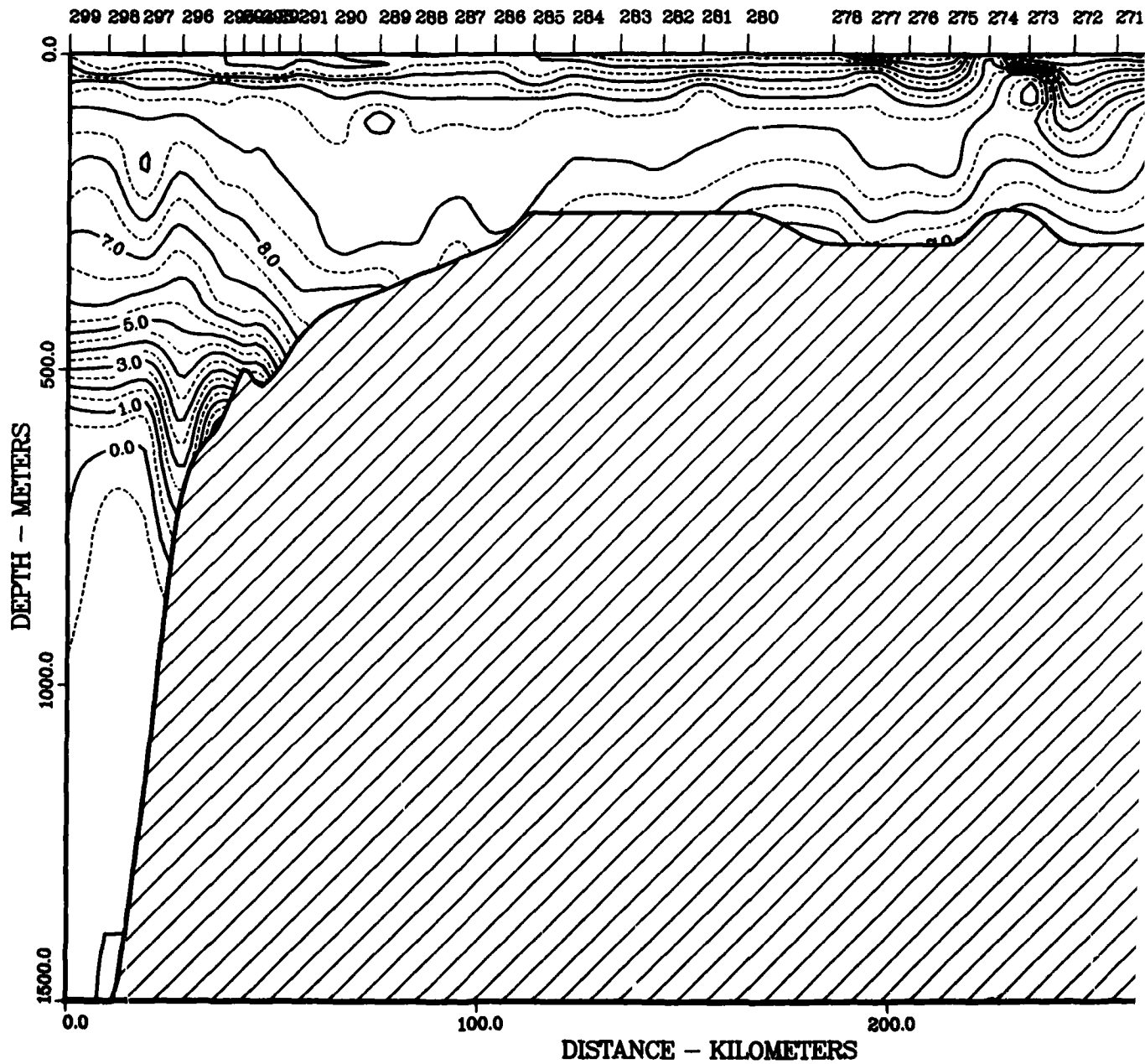
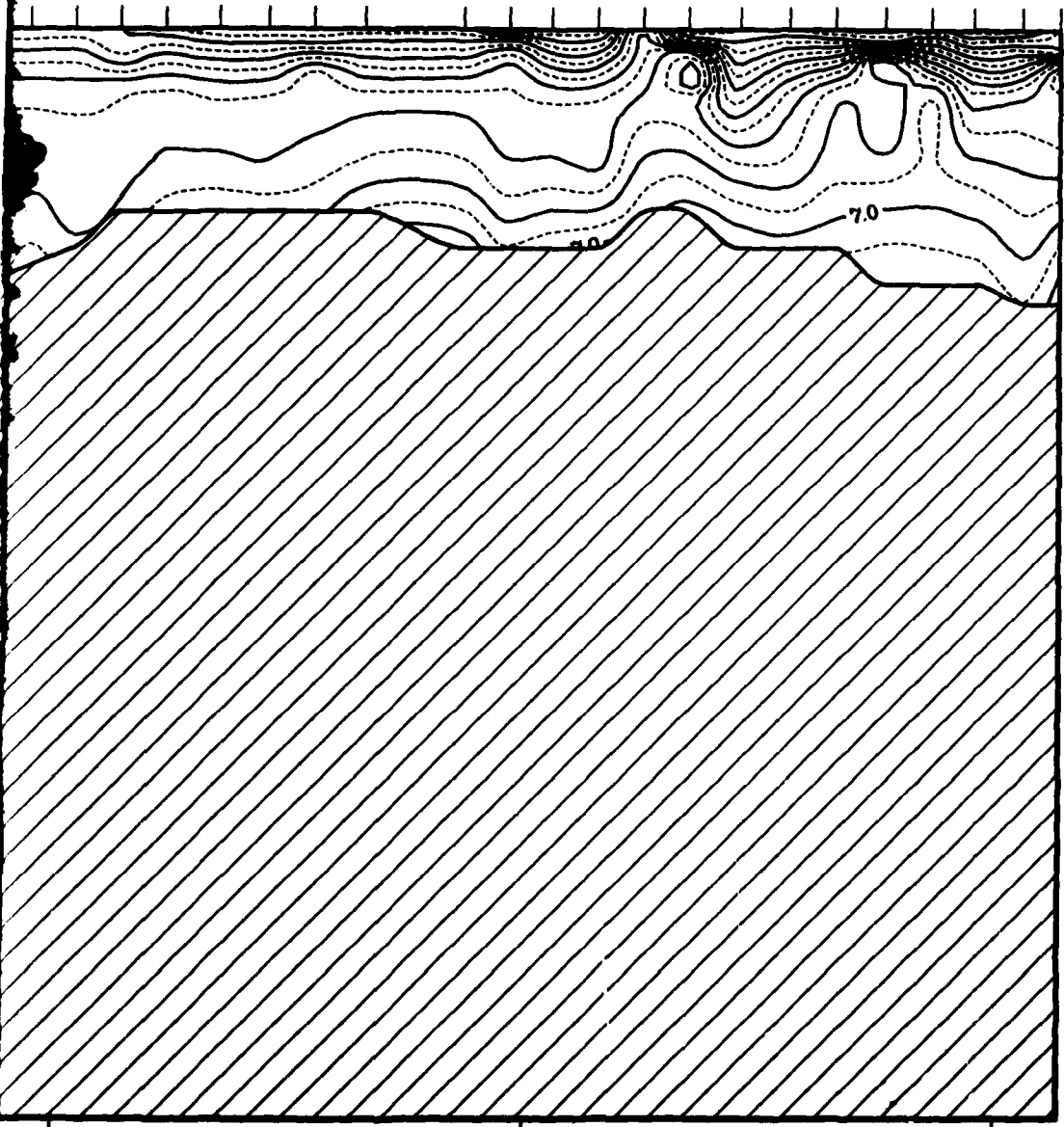


Figure 179. August 1952 temperature section.

SOGNEFJORD SECTION
 FILE - ICES4:1952RAU.DAT
 TEMPERATURE

287 286 285 284 283 282 281 280 278 277 276 275 274 273 272 271 270 269 268 267 266 265



100.0 200.0 300.0

DISTANCE - KILOMETERS

August 1952 temperature section.

181

2

SOGNEFJORD SECTION
 FILE = ICES3:1952RAU.DAT
 SALINITY

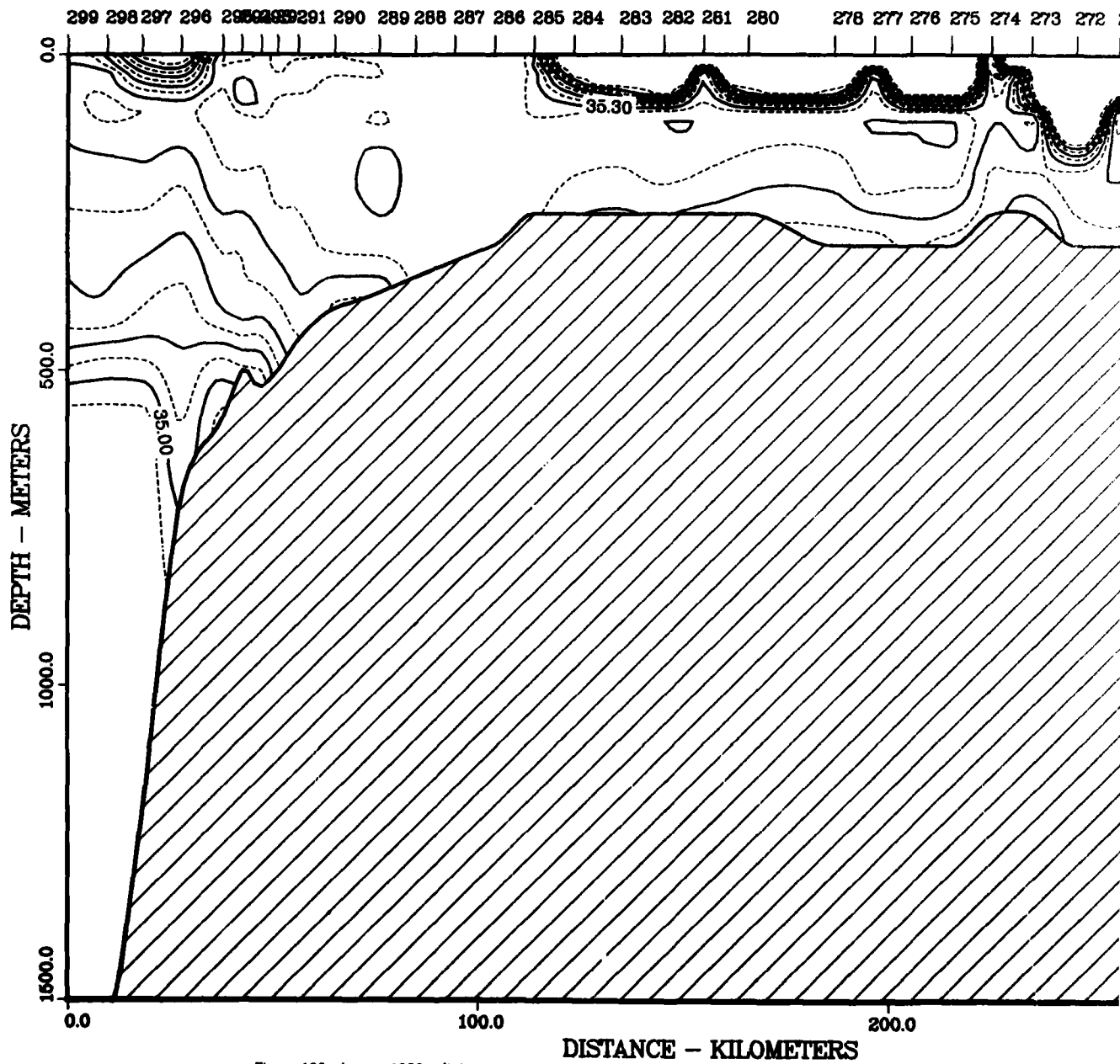
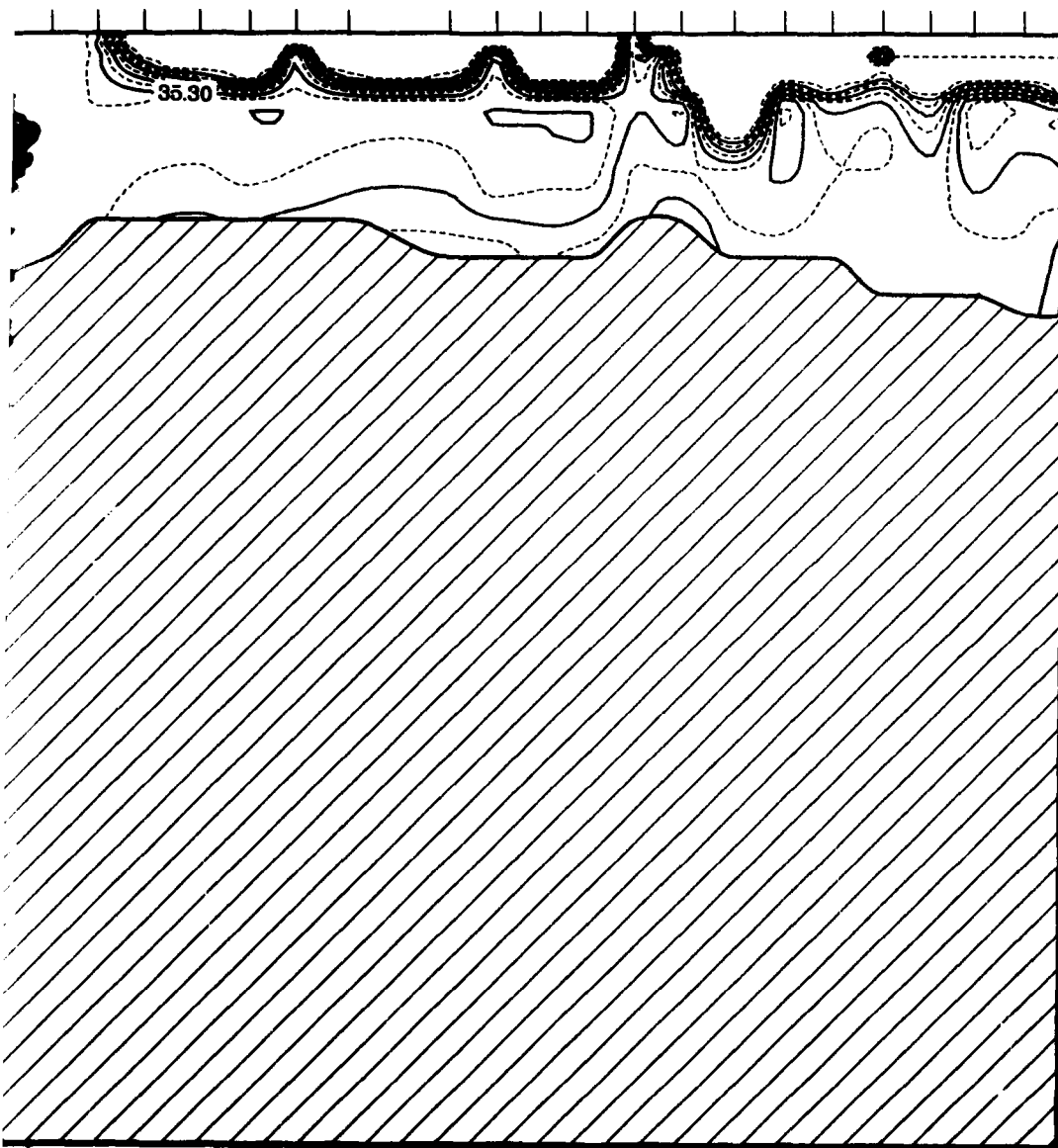


Figure 180. August 1952 salinity section.

SOGNEFJORD SECTION
FILE = ICES41952RAU.DAT
SALINITY

87 286 285 284 283 282 281 230 278 277 276 275 274 273 272 271 270 269 268 267 266 265



100.0 200.0 300.0

DISTANCE - KILOMETERS

ity section.

1

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ICES\$1953YMA.DAT

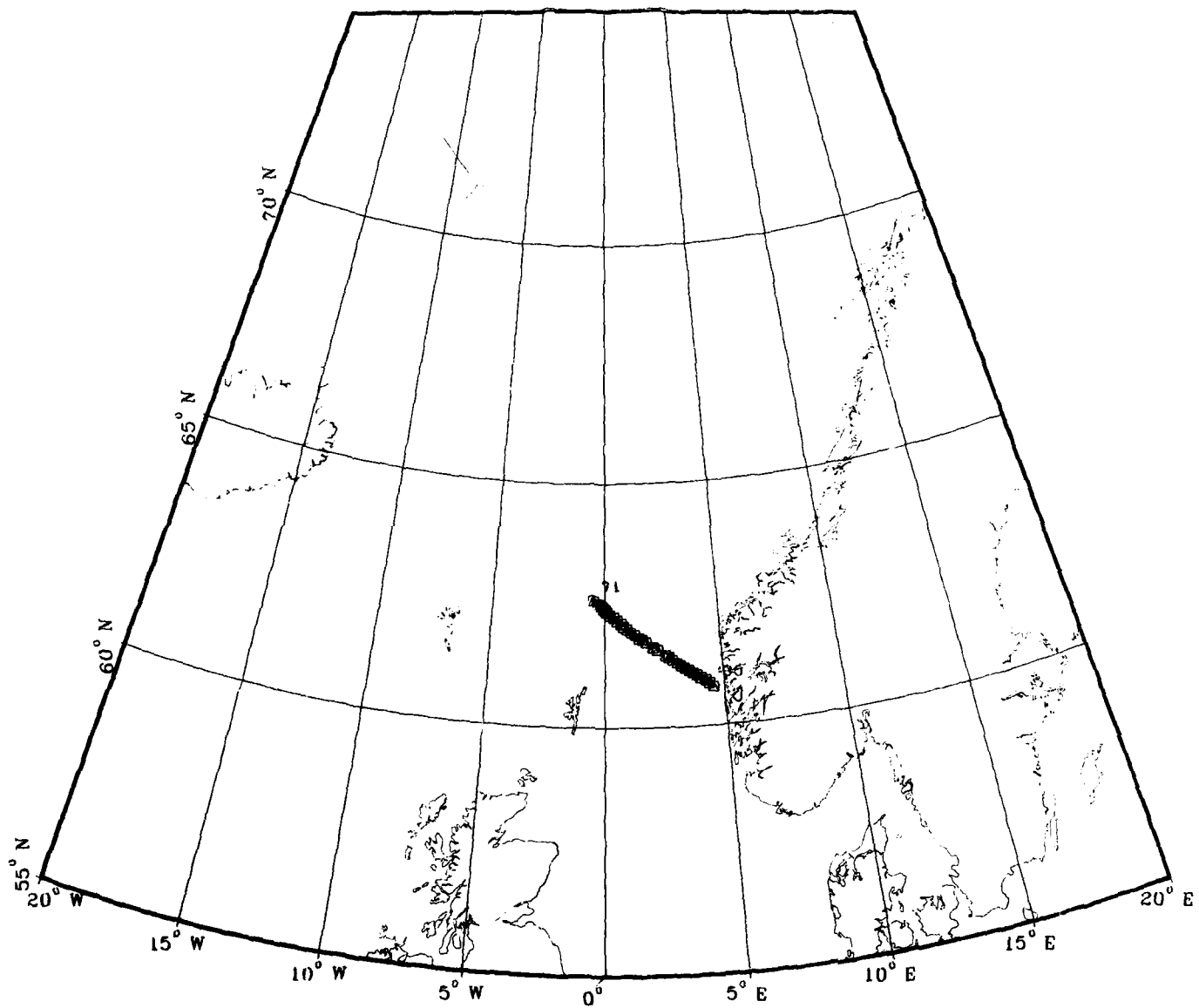


Figure 181. May 1953 station positions.

SOGNEFJORD SECTION
FILE = ICES\$:1953YMA.DAT
T/S PLOT

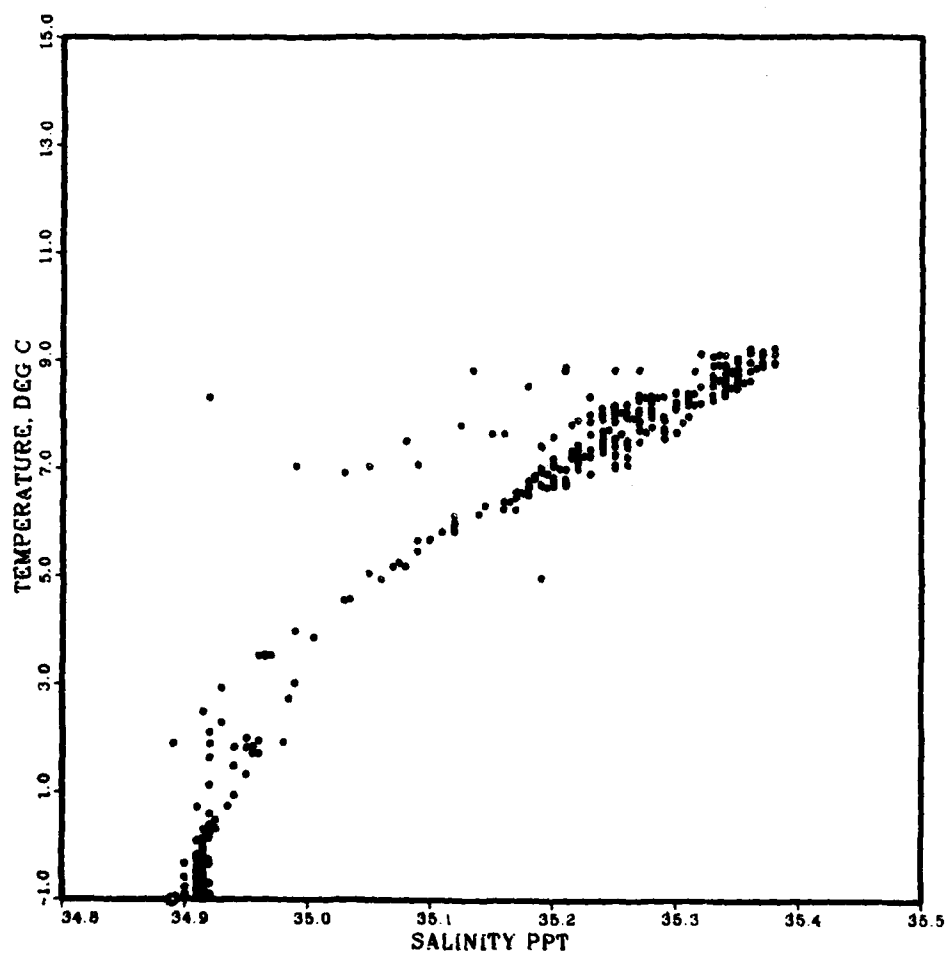


Figure 182. May 1953 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$1953YMA.DAT
 TEMPERATURE

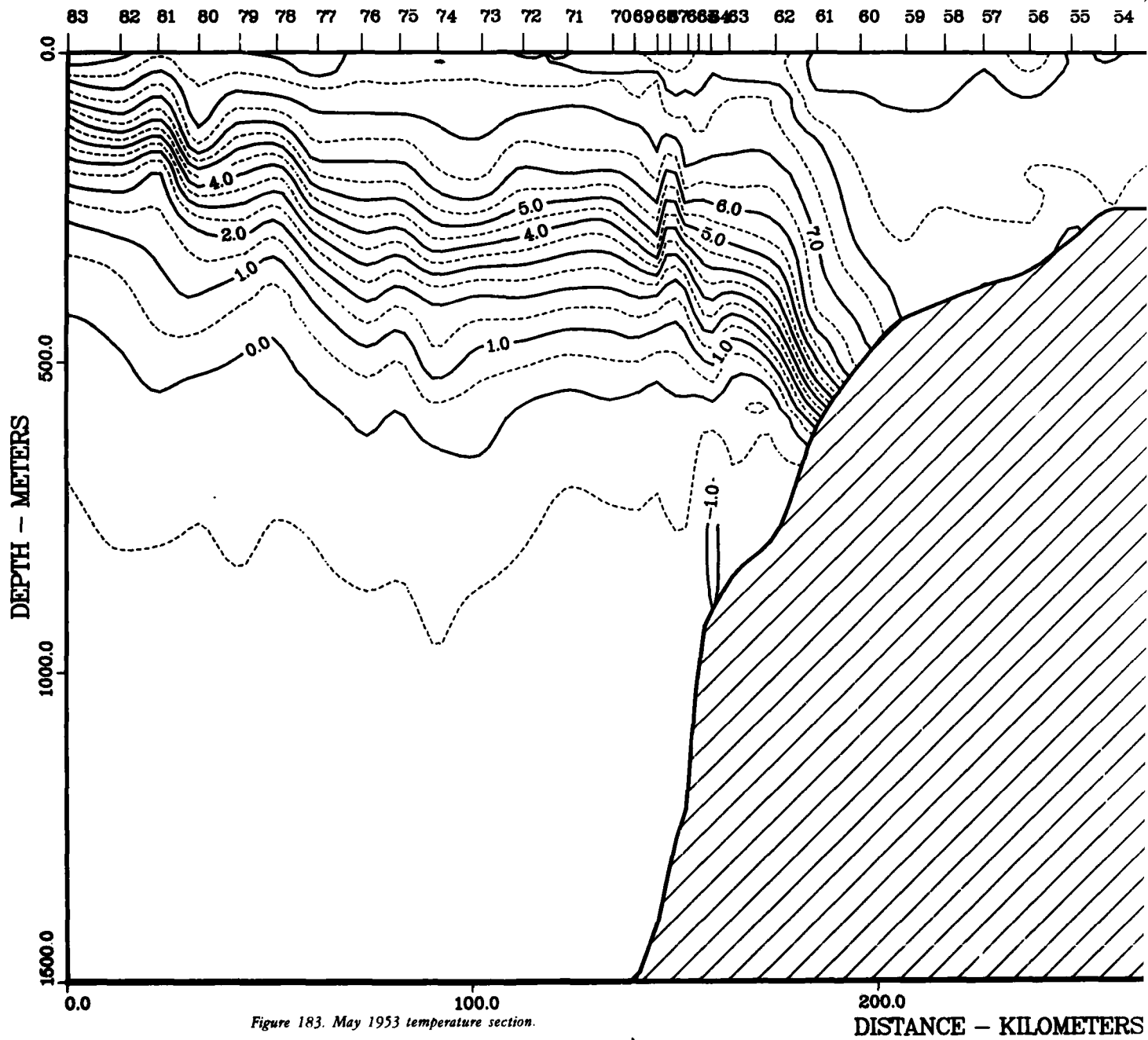
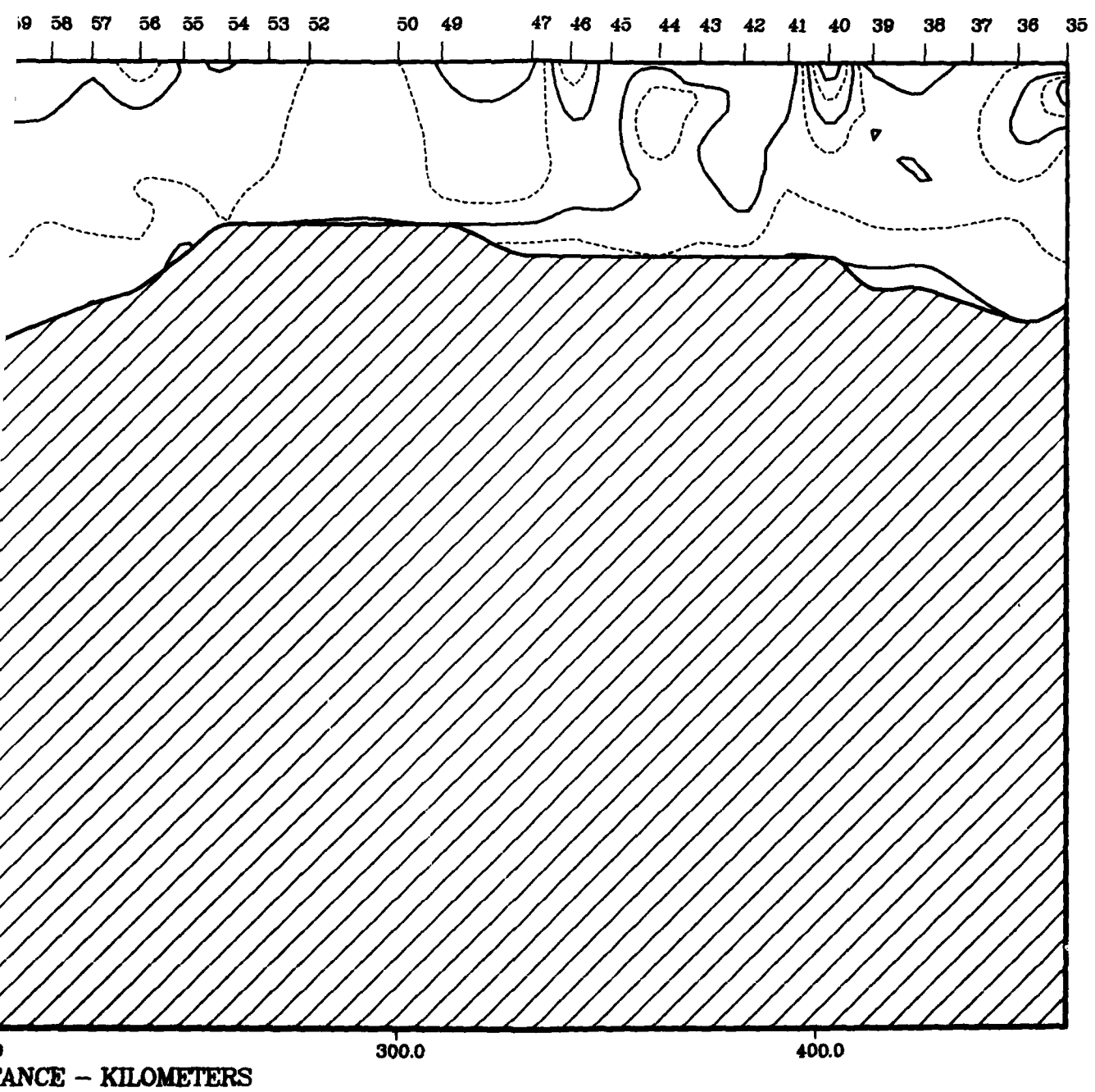


Figure 183. May 1953 temperature section.

NEFJORD SECTION
E = ICES:1953YMA.DAT
TEMPERATURE



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SOGNEFJORD SECT
FILE = ICES:1953YMA
SALINITY

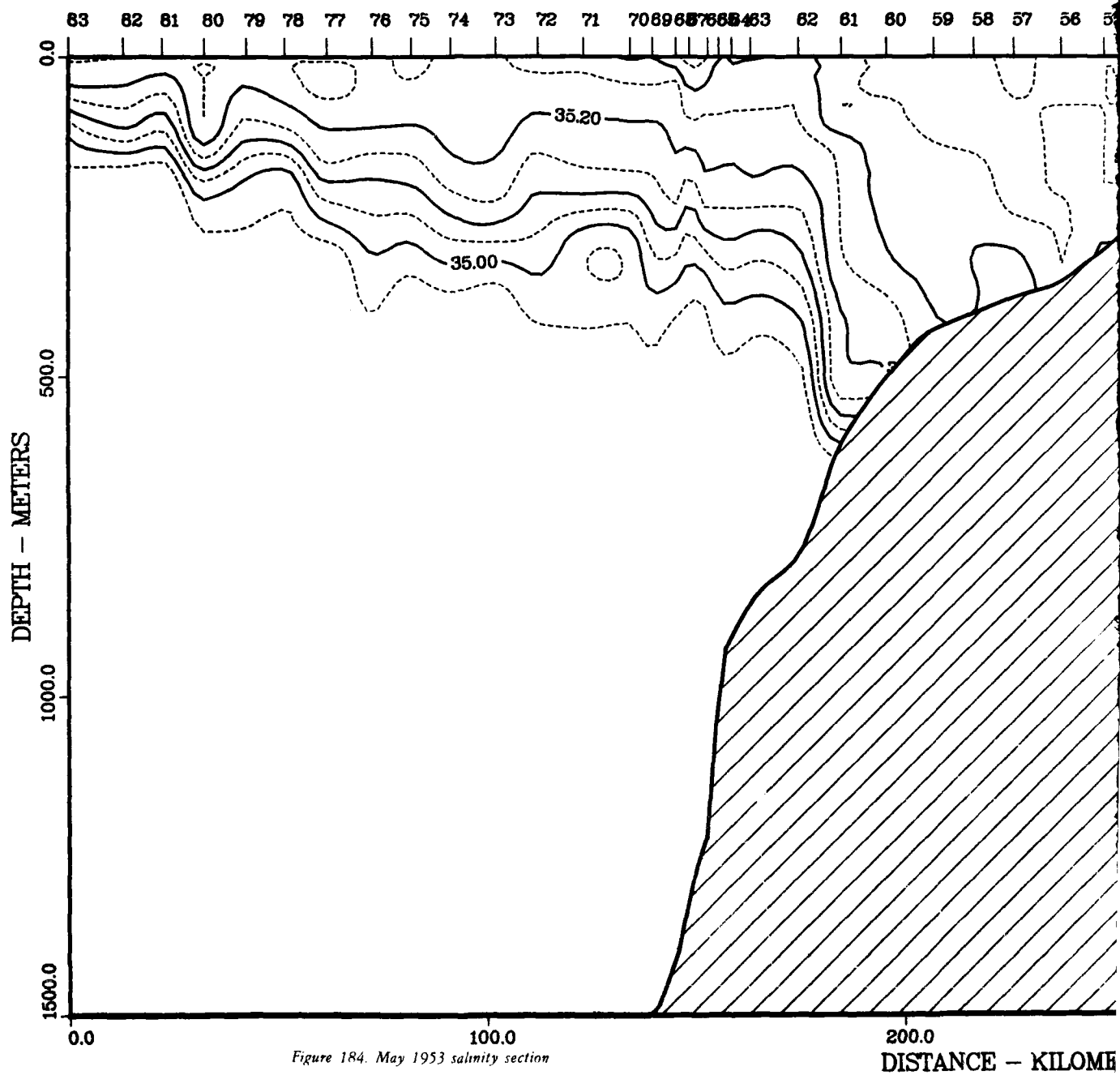


Figure 184. May 1953 salinity section

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ATLAS OF SOGNETJORD SECTIONS 1968-1970(U) NAVAL OCEAN
RESEARCH AND DEVELOPMENT ACTIVITY NSTL STATION MS
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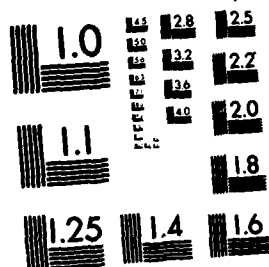
4/4

UNCLASSIFIED

F/G 8/10

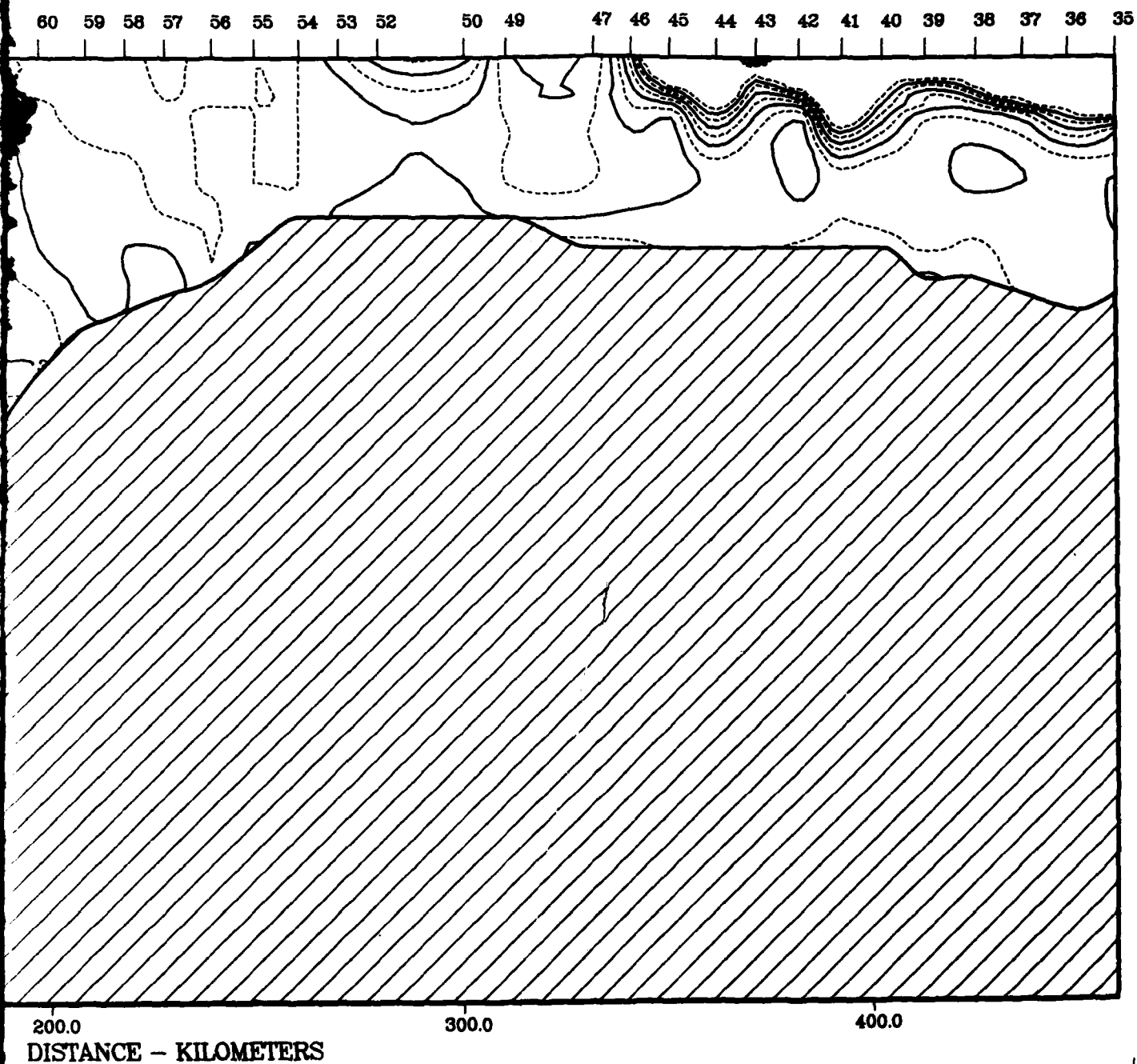
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NATIONAL BUREAU OF STANDARDS-1963-A

SOGNEFJORD SECTION
FILE = ICES\$1953YMA.DAT
SALINITY



48

ICES\$:1953XJU.DAT

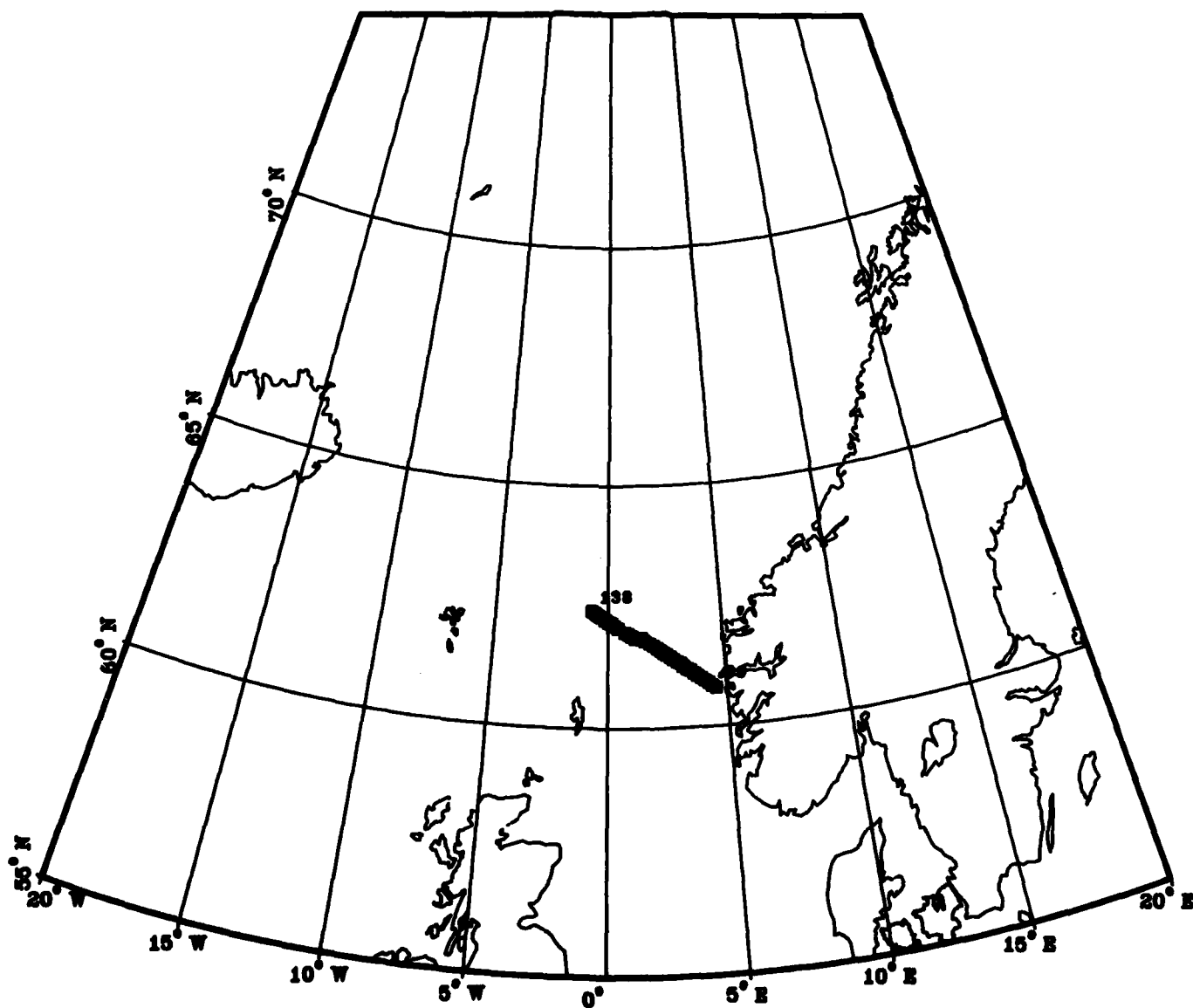


Figure 185. June 1953 station positions.

SOGNEFJORD SECTION
FILE = ICES\$:1953XJU.DAT
T/S PLOT

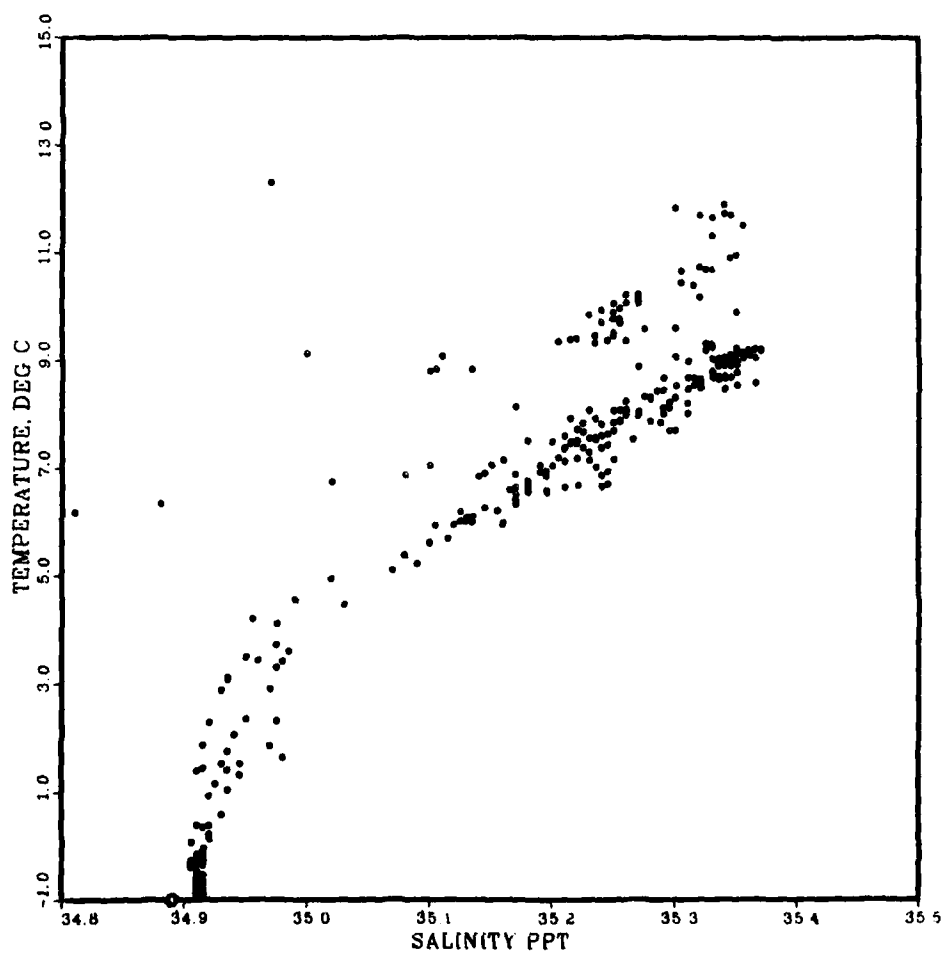


Figure 186. June 1953 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$.1953XJU.DAT
 TEMPERATURE

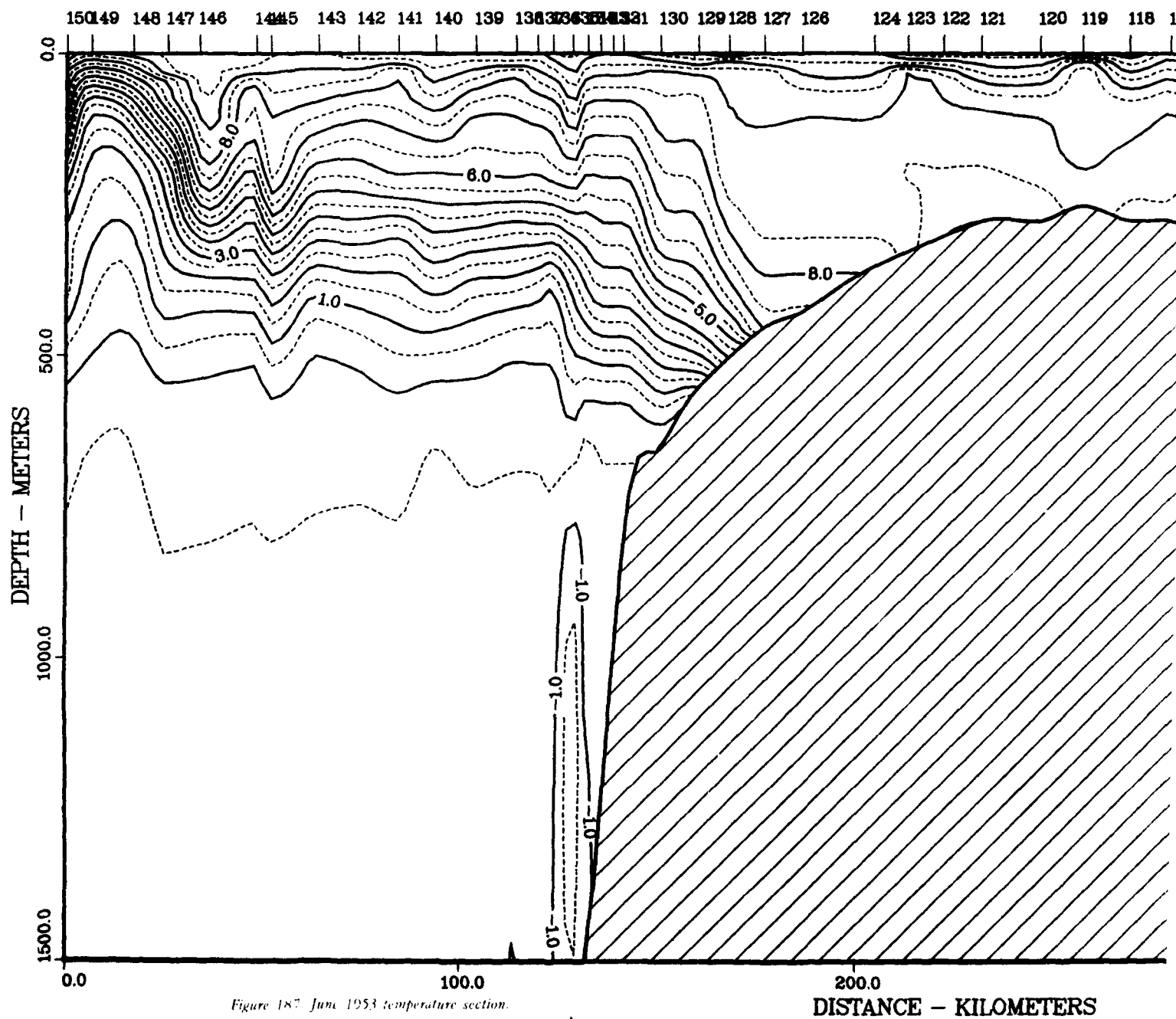
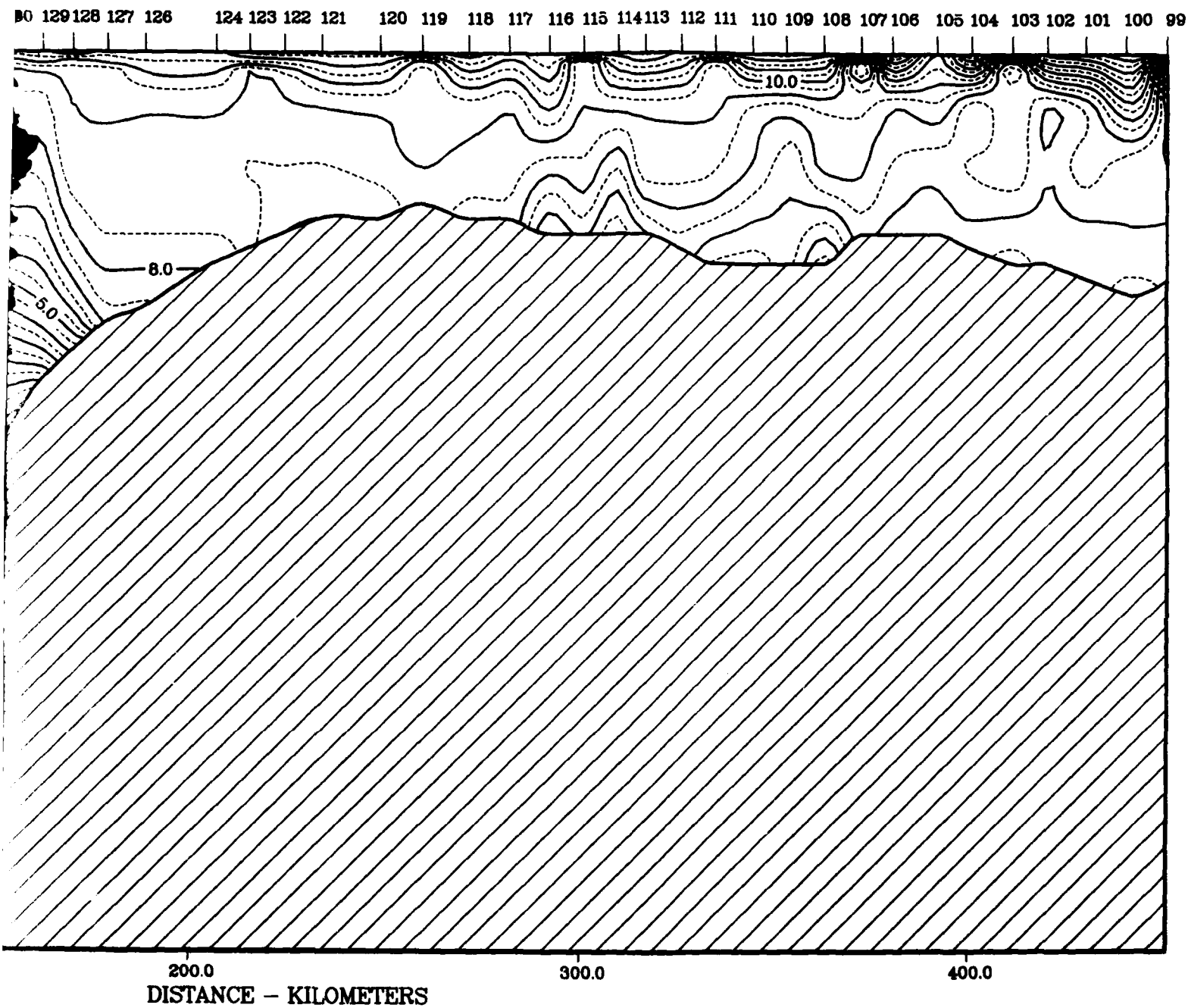


Figure 187. June 1953 temperature section.

SOGNEFJORD SECTION
FILE = ICES\$1953XJU.DAT
TEMPERATURE



2

SOGNEFJORD SECTION
 FILE = ICES3:1953XJU.DAT
 SALINITY

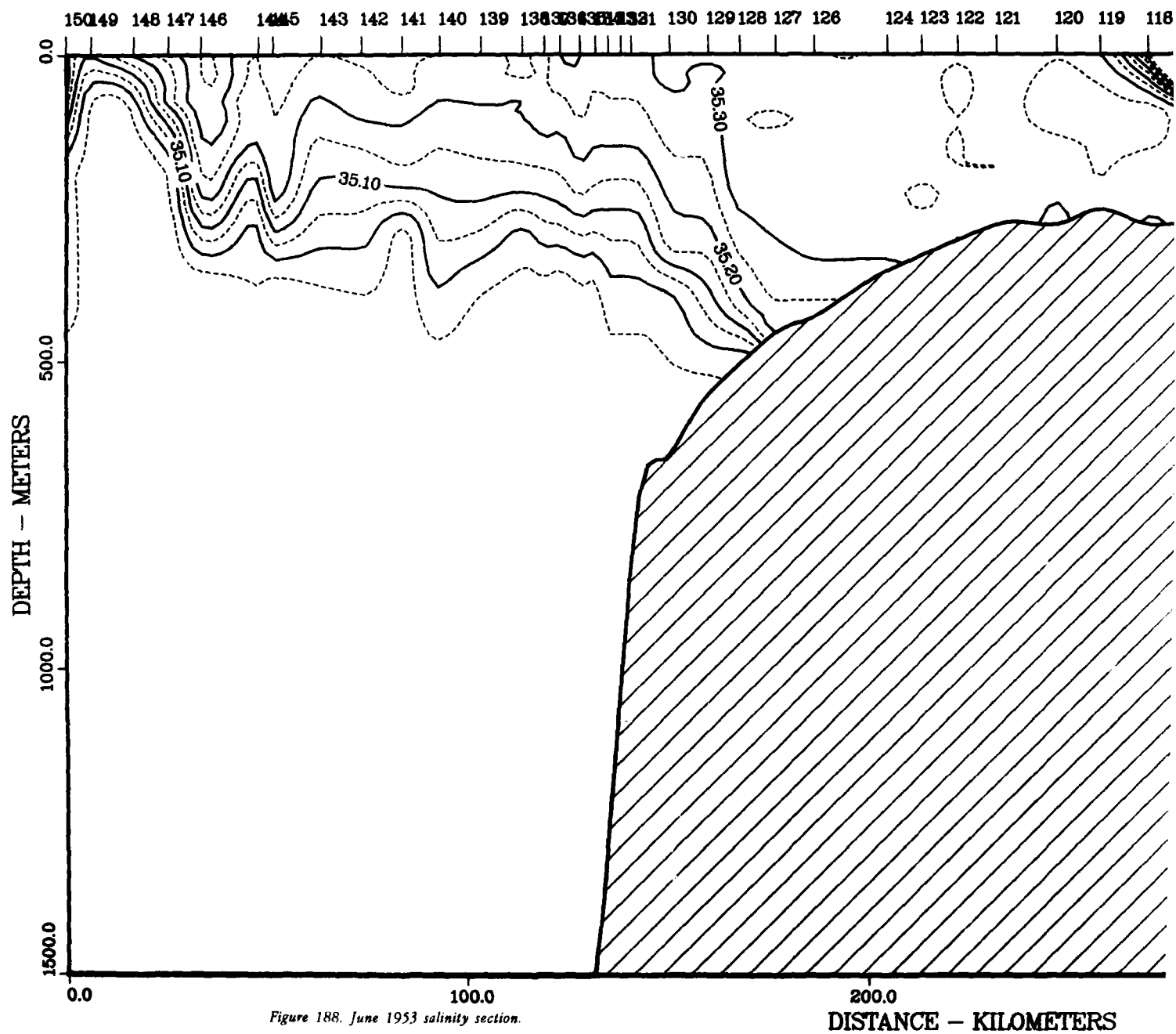
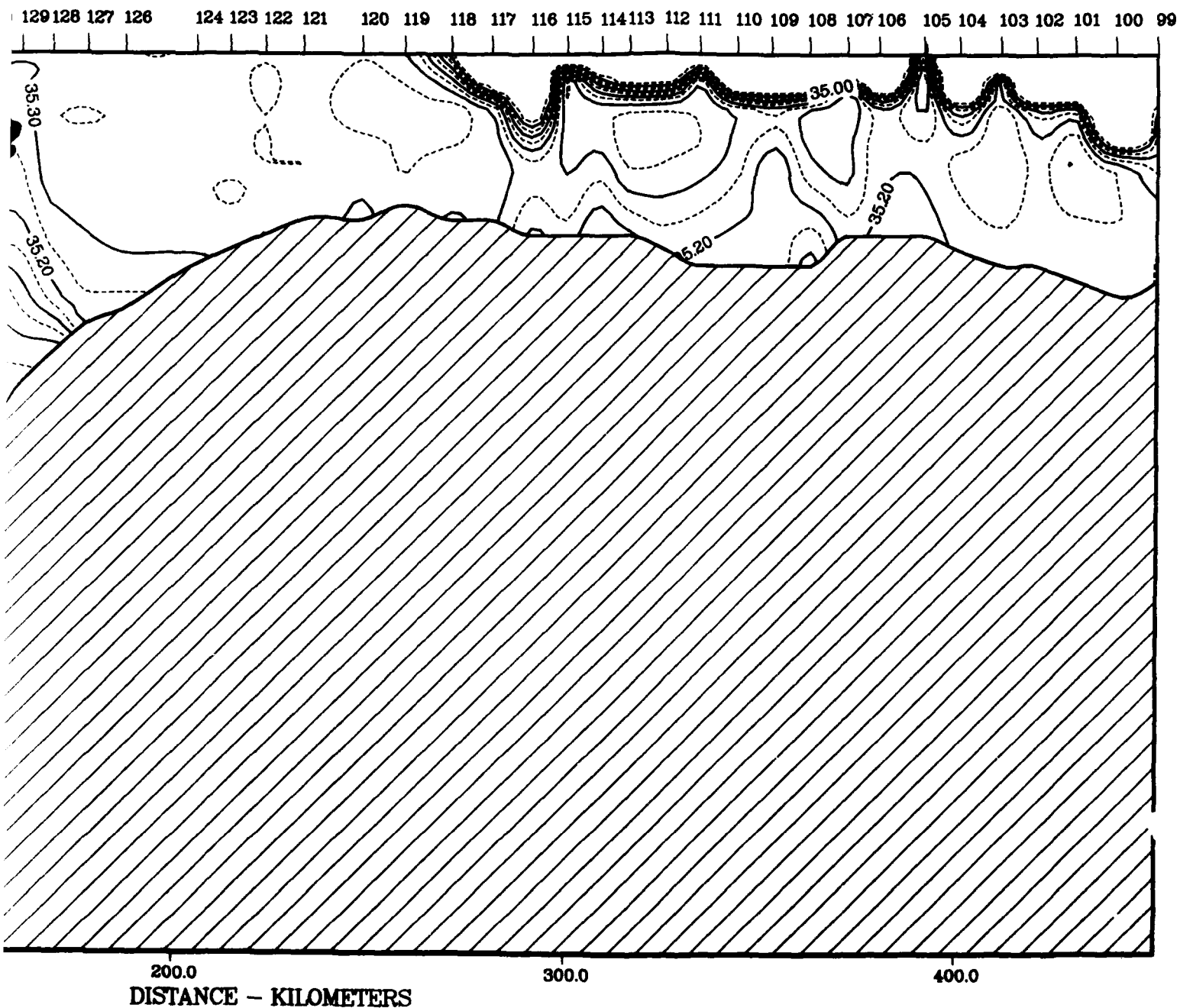


Figure 188. June 1953 salinity section.

SOGNEFJORD SECTION
FILE = ICES3:1953XJU.DAT
SALINITY



ICES\$:1953WAU.DAT

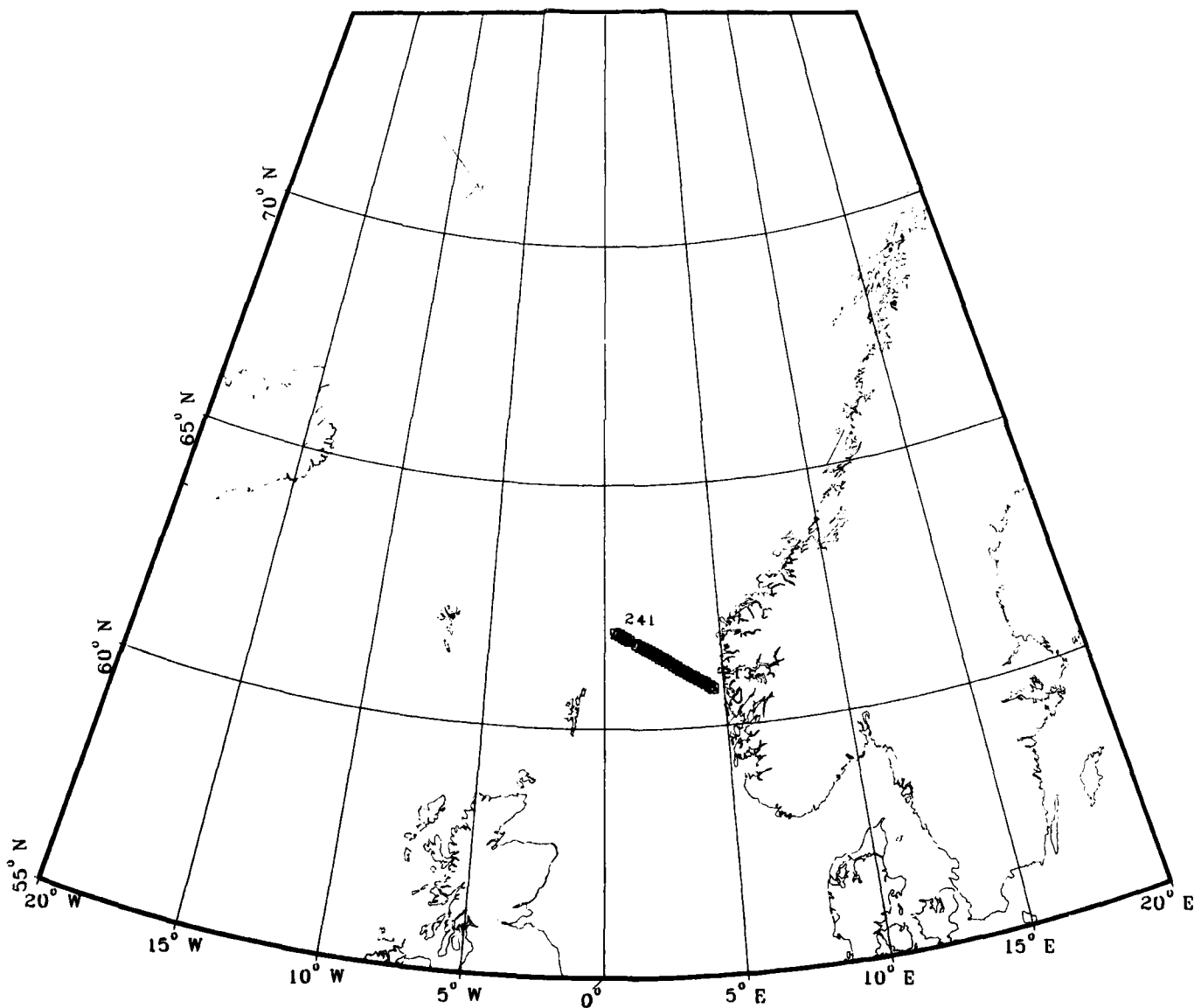


Figure 189. August 1953 station positions.

SOGNEFJORD SECTION
FILE = ICES\$:1953WAU.DAT
T/S PLOT

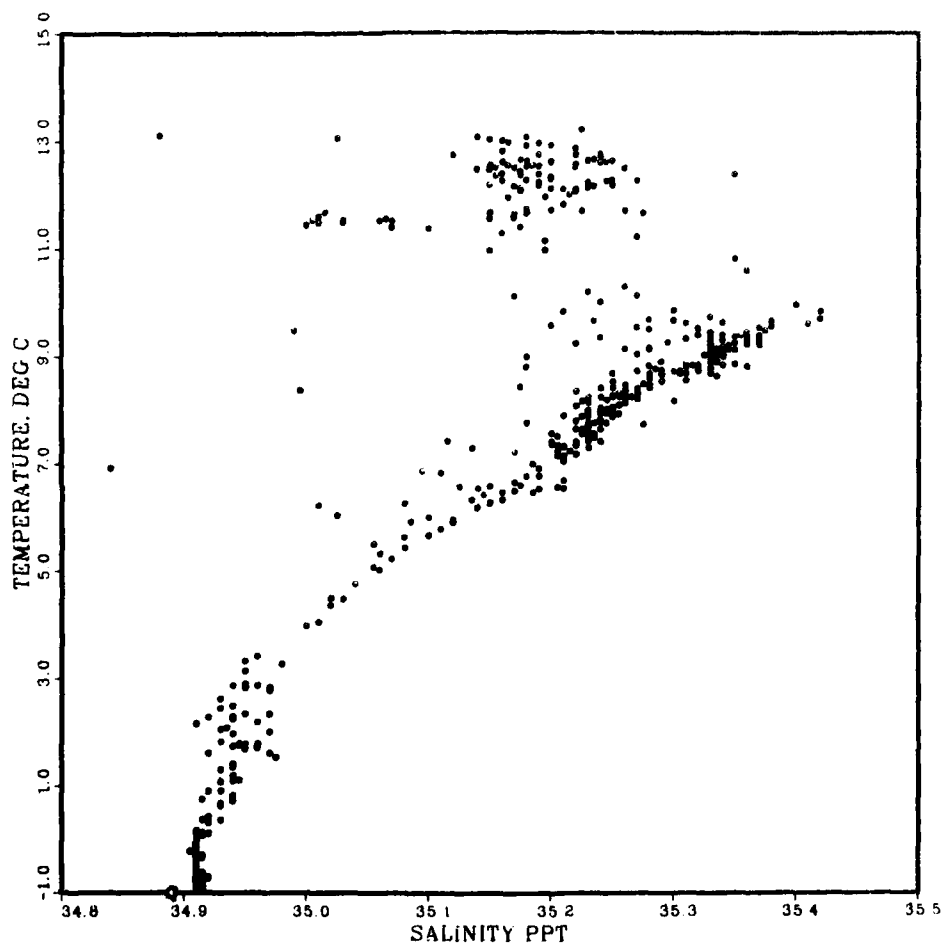


Figure 190. August 1953 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES1953WAU.DAT
 TEMPERATURE

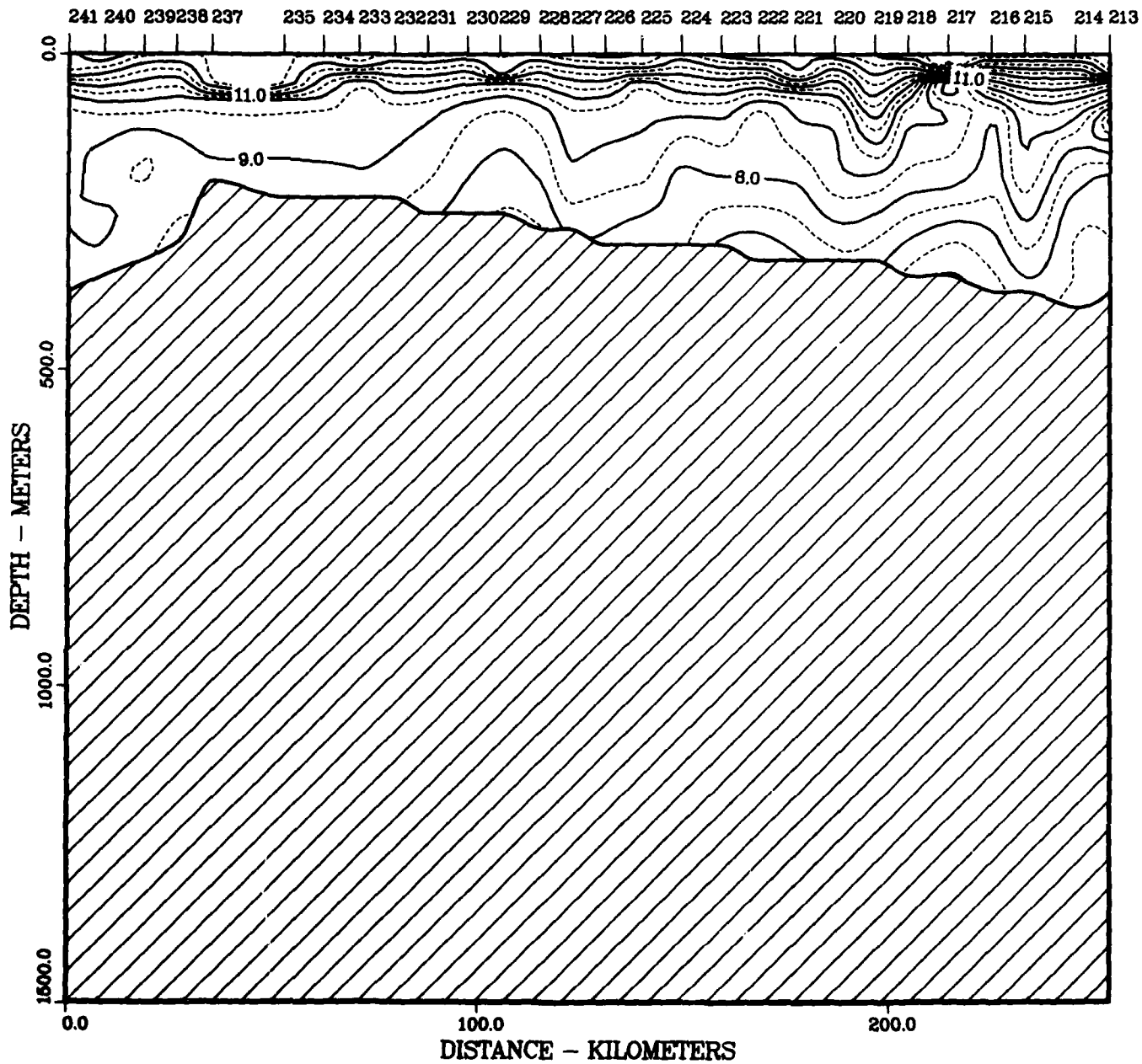


Figure 191. August 1953 temperature section.

SOGNEFJORD SECTION
 FILE = ICES\$1953WAU.DAT
 SALINITY

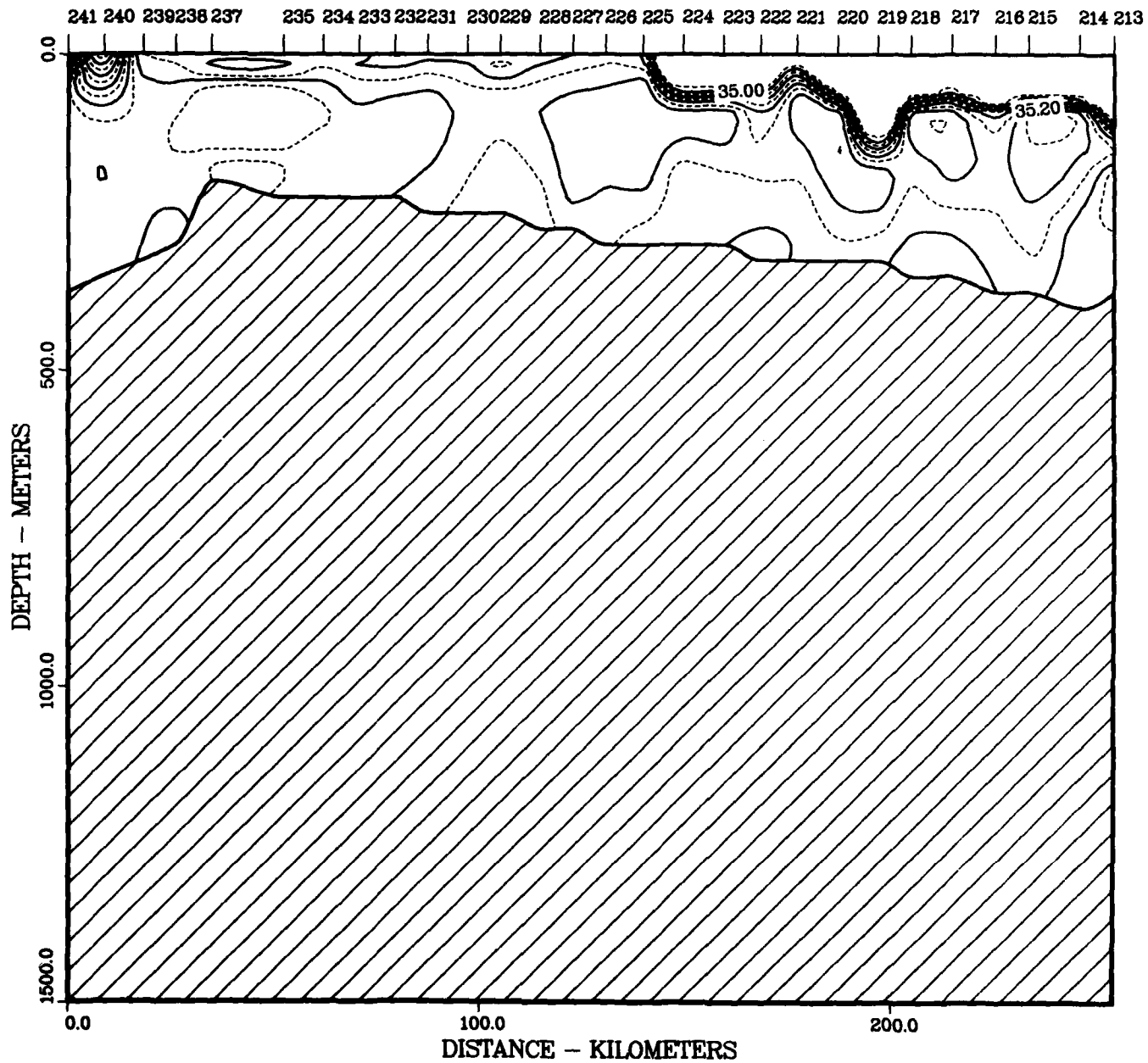


Figure 192. August 1953 salinity section.

ICES\$:1959.DAT

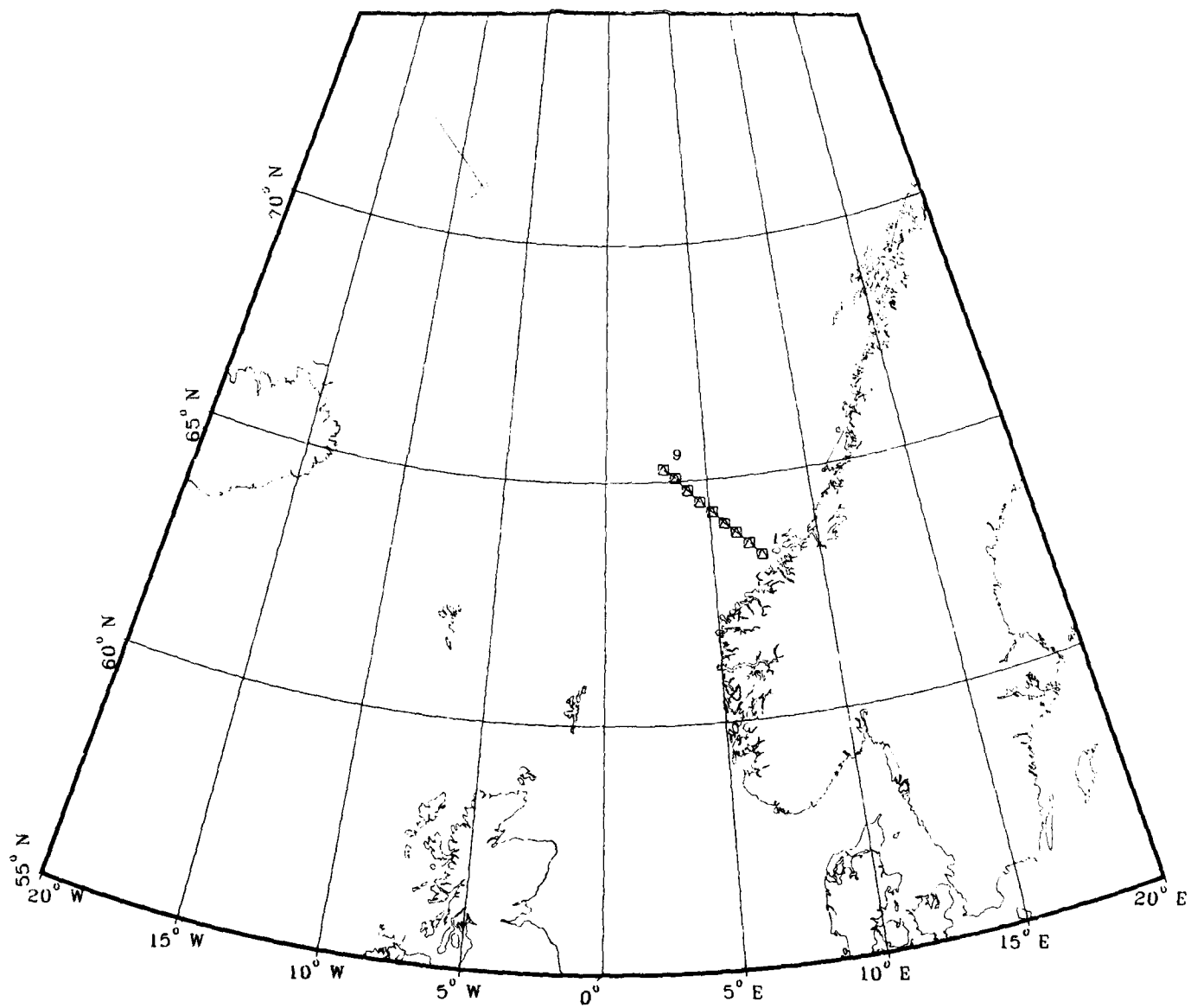


Figure 193. January 1959 station positions.

SOGNEFJORD SECTION
FILE = ICES\$:1959.DAT
T/S PLOT

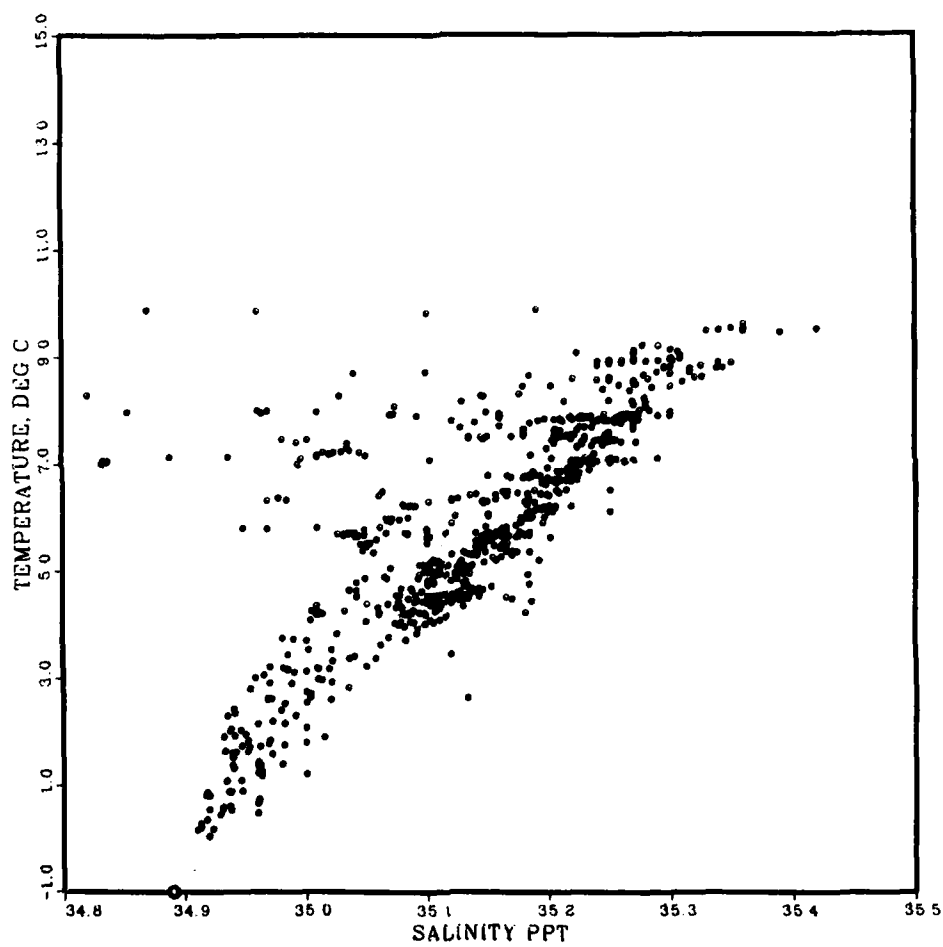


Figure 194. January 1959 temperature/salinity diagram.

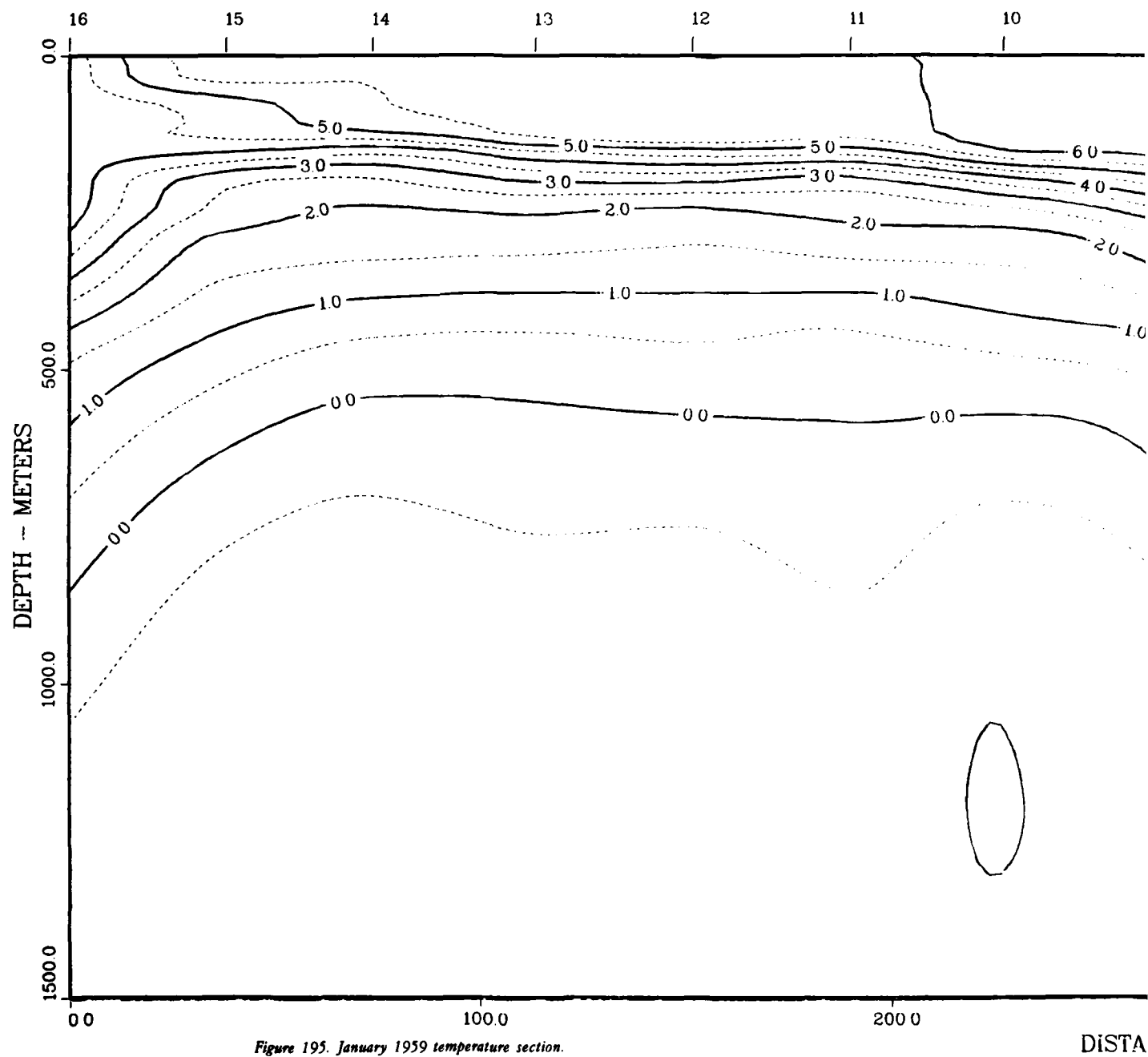
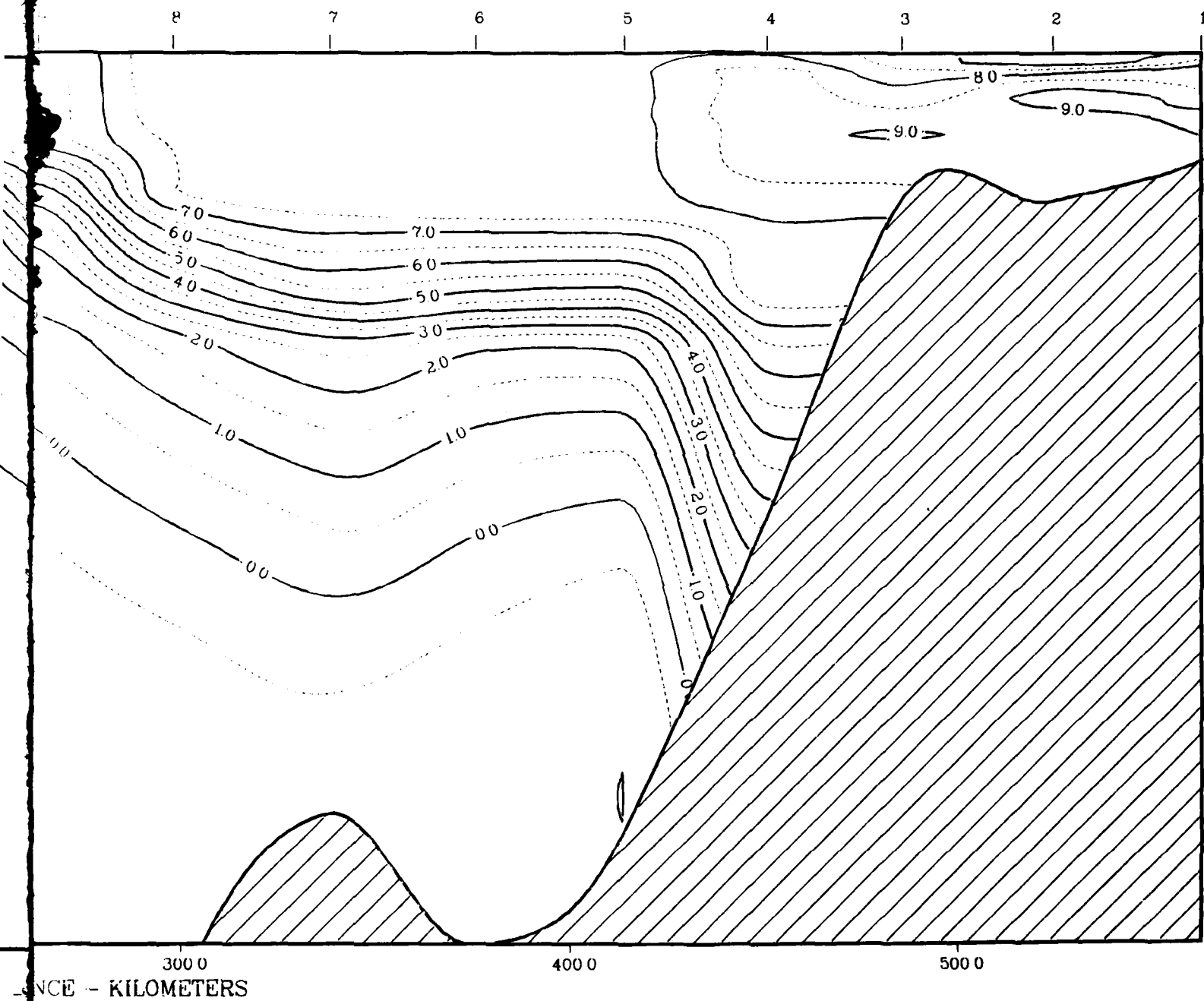


Figure 195. January 1959 temperature section.

JONEFJORD SECTION
ICEBERG - ICES 1959 DAT 1
TEMPERATURE



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FILE = ICES
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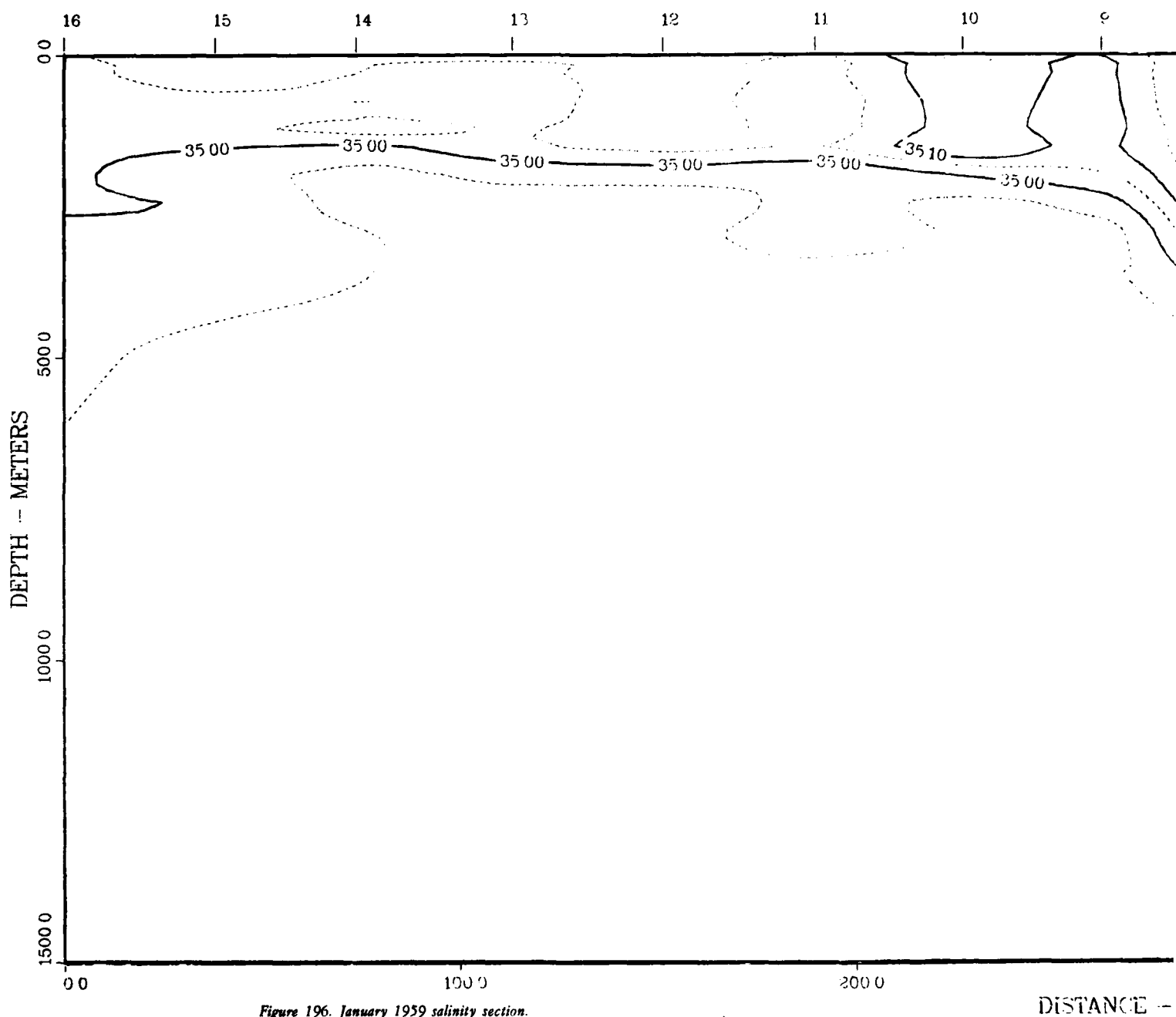
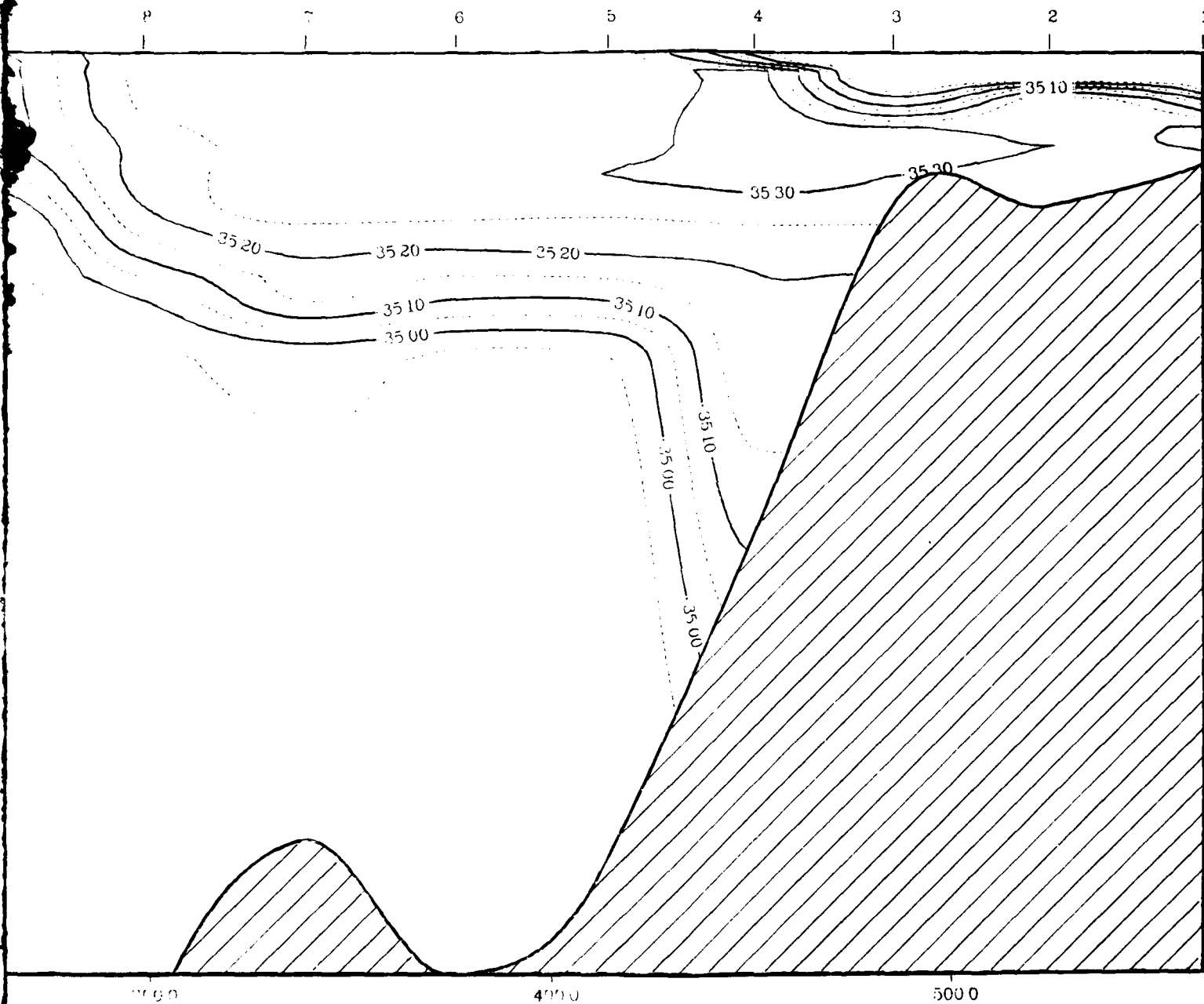


Figure 196. January 1959 salinity section.

LEFJORD SECTION

= ICES 1959 DAT 1
SALINITY



0 1000 2000 3000 4000 5000
KILOMETERS

ICES\$:1960.DAT

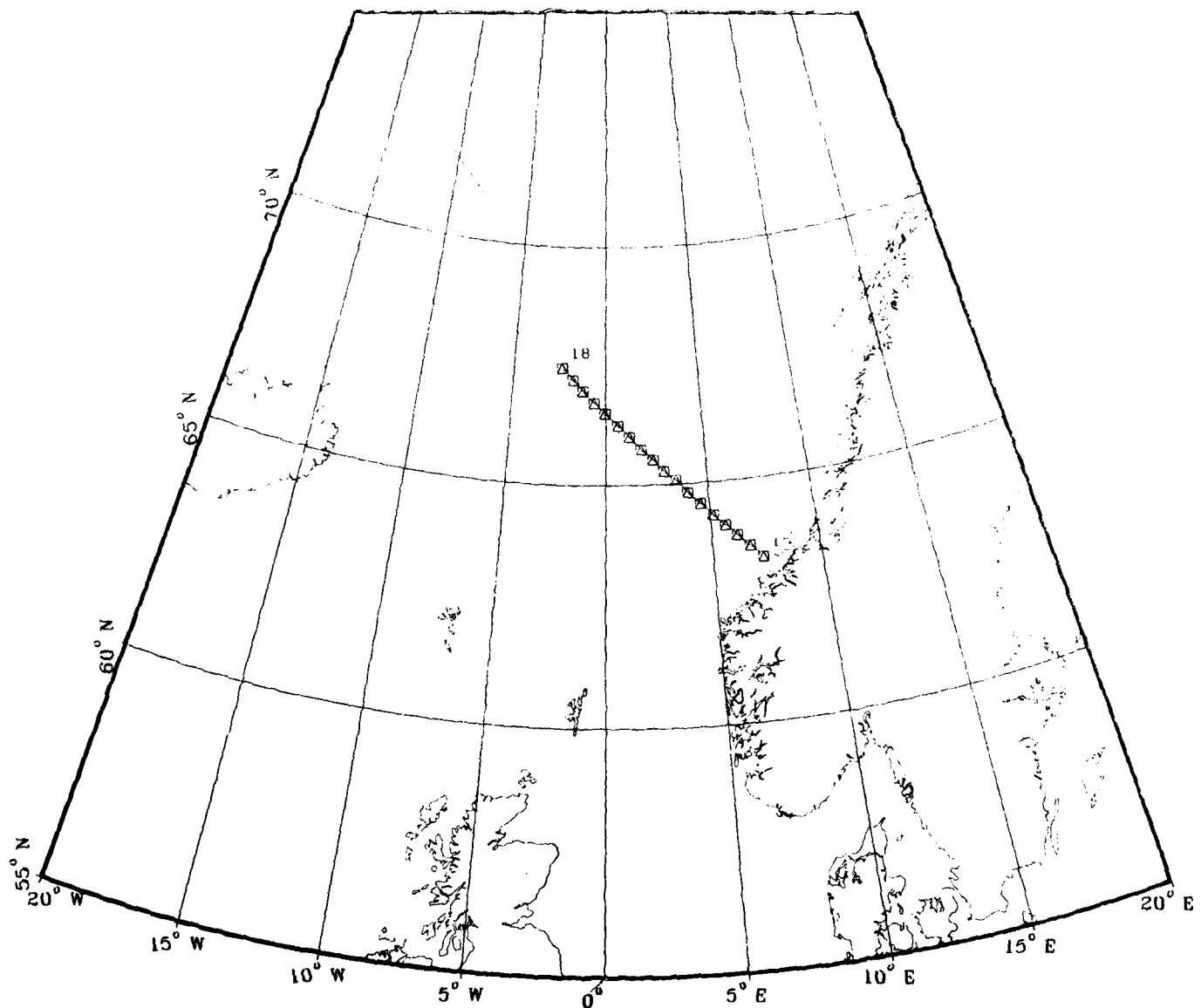


Figure 197. January 1960 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1960.DAT
T/S PLOT

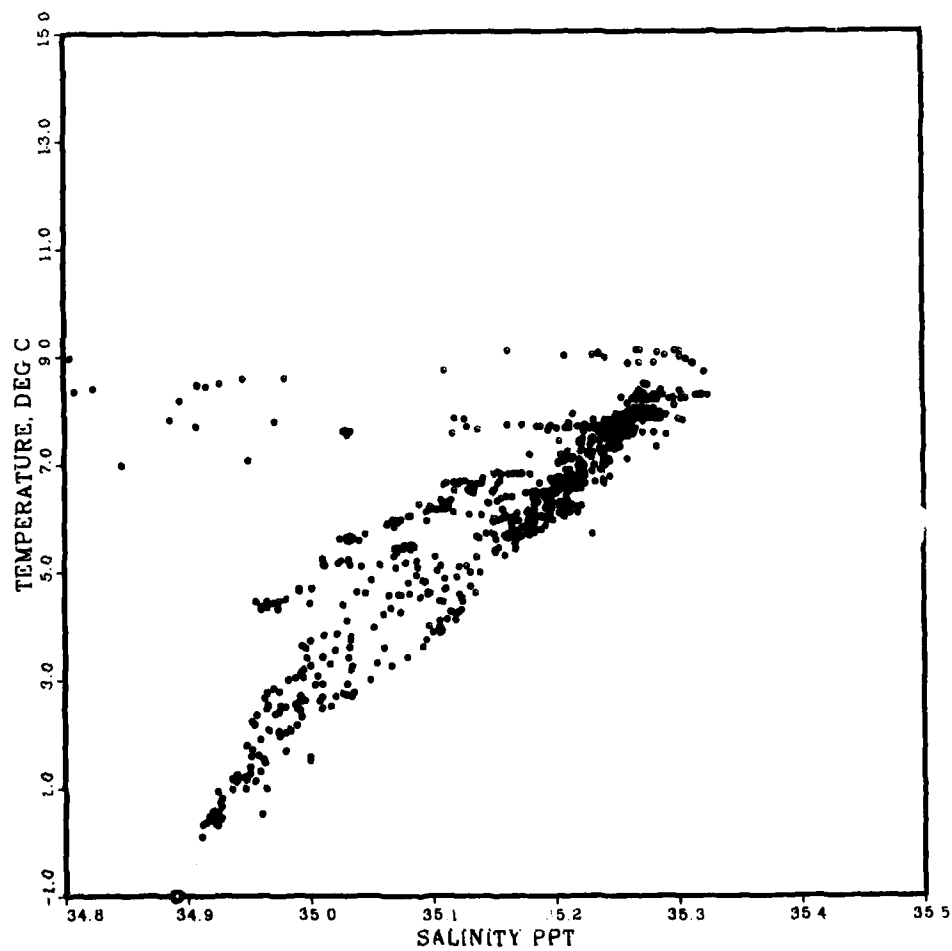


Figure 198. January 1960 temperature/salinity diagram.

SO

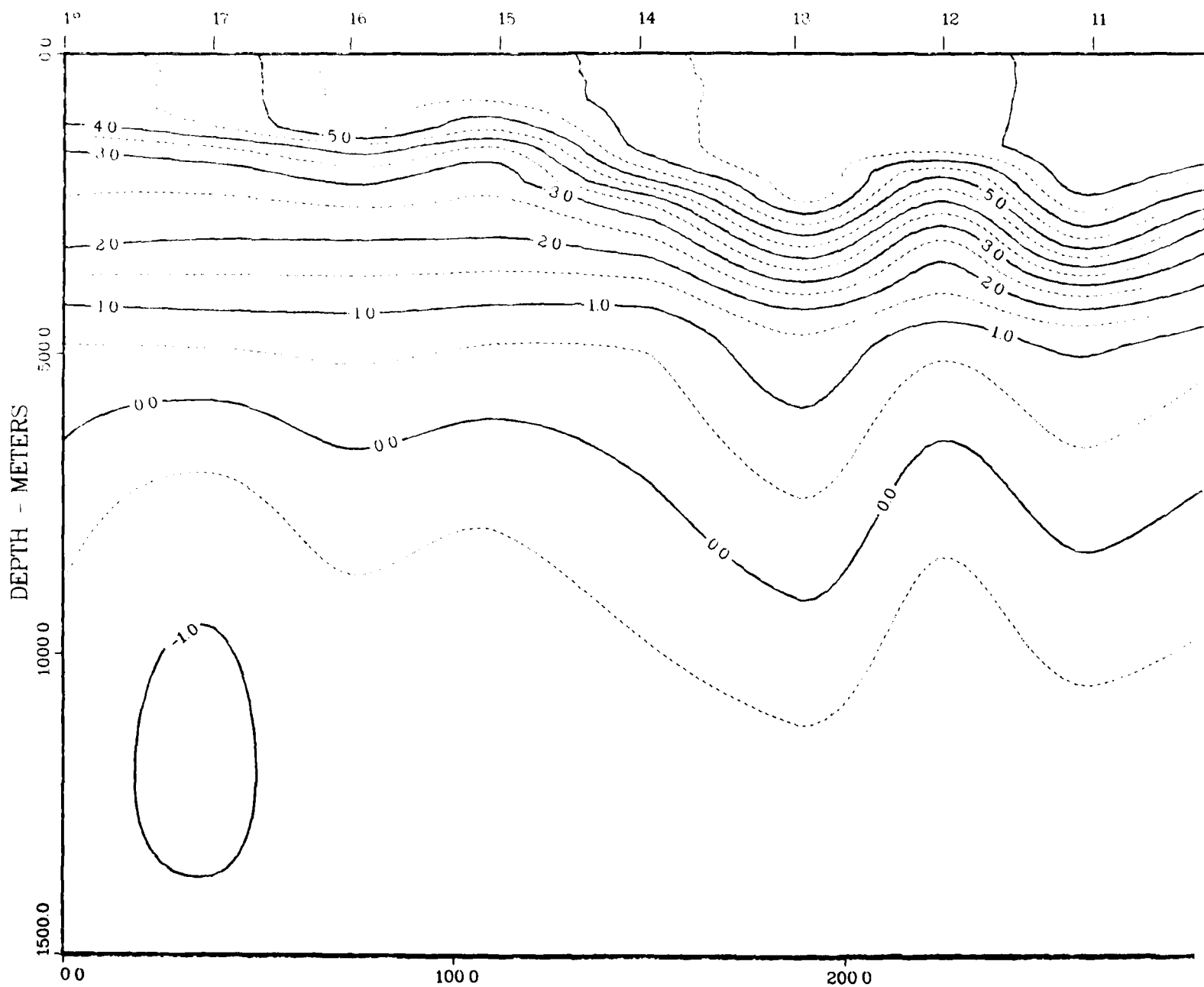
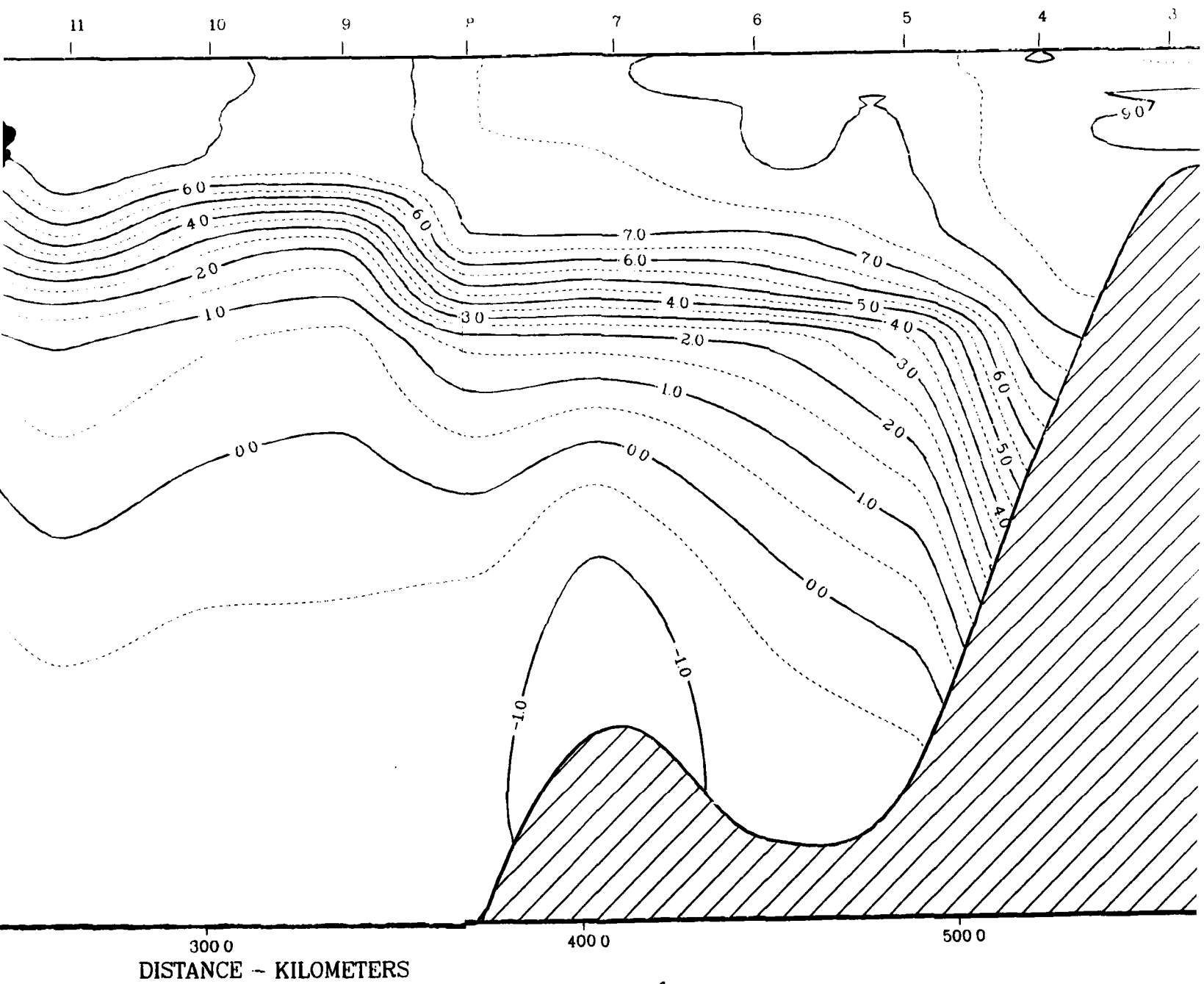
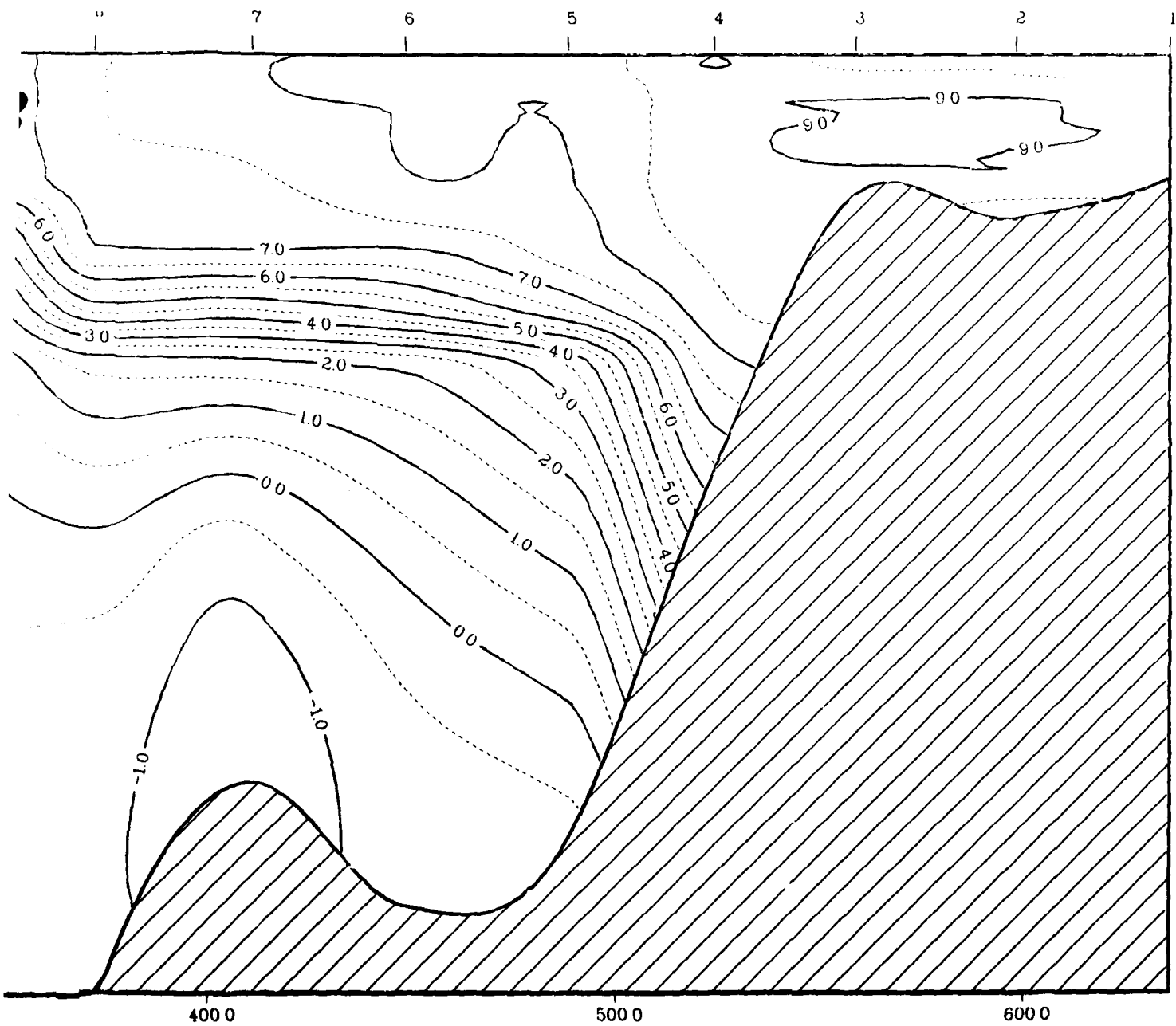


Figure 199. January 1960 temperature section.

SOGNEFJORD SECTION
FILE = ICES\$ 1960 DAT 1
TEMPERATURE





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FILE

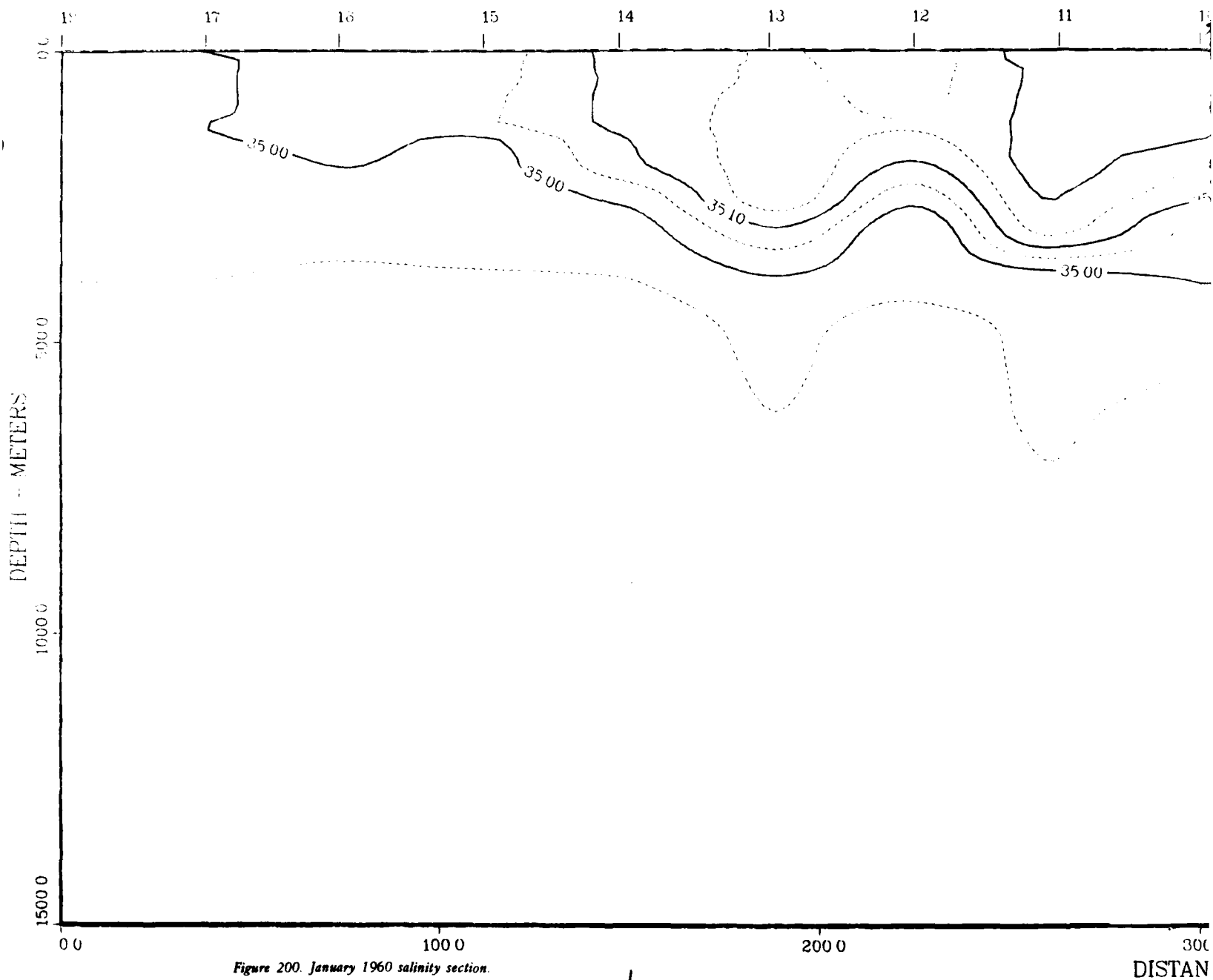
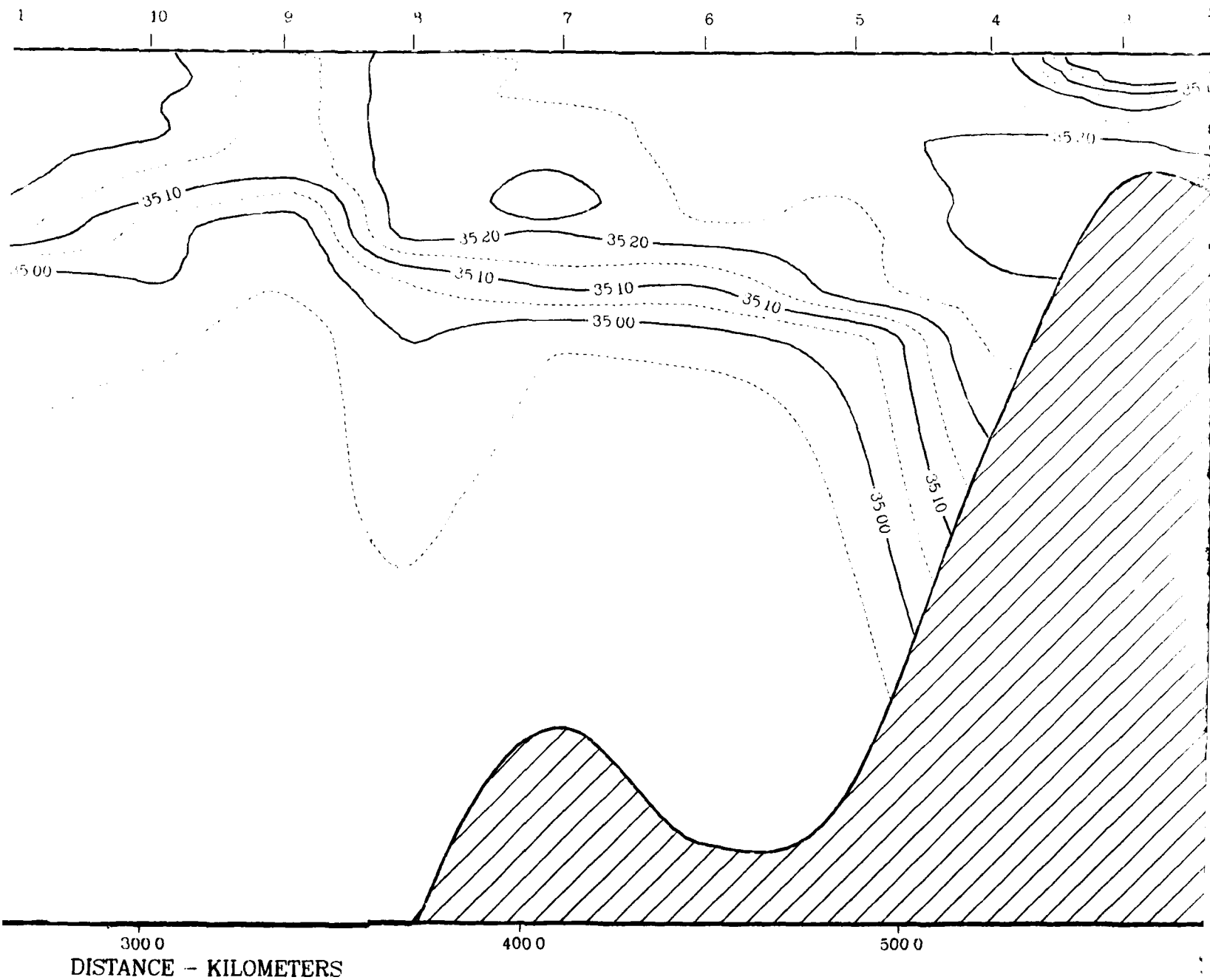


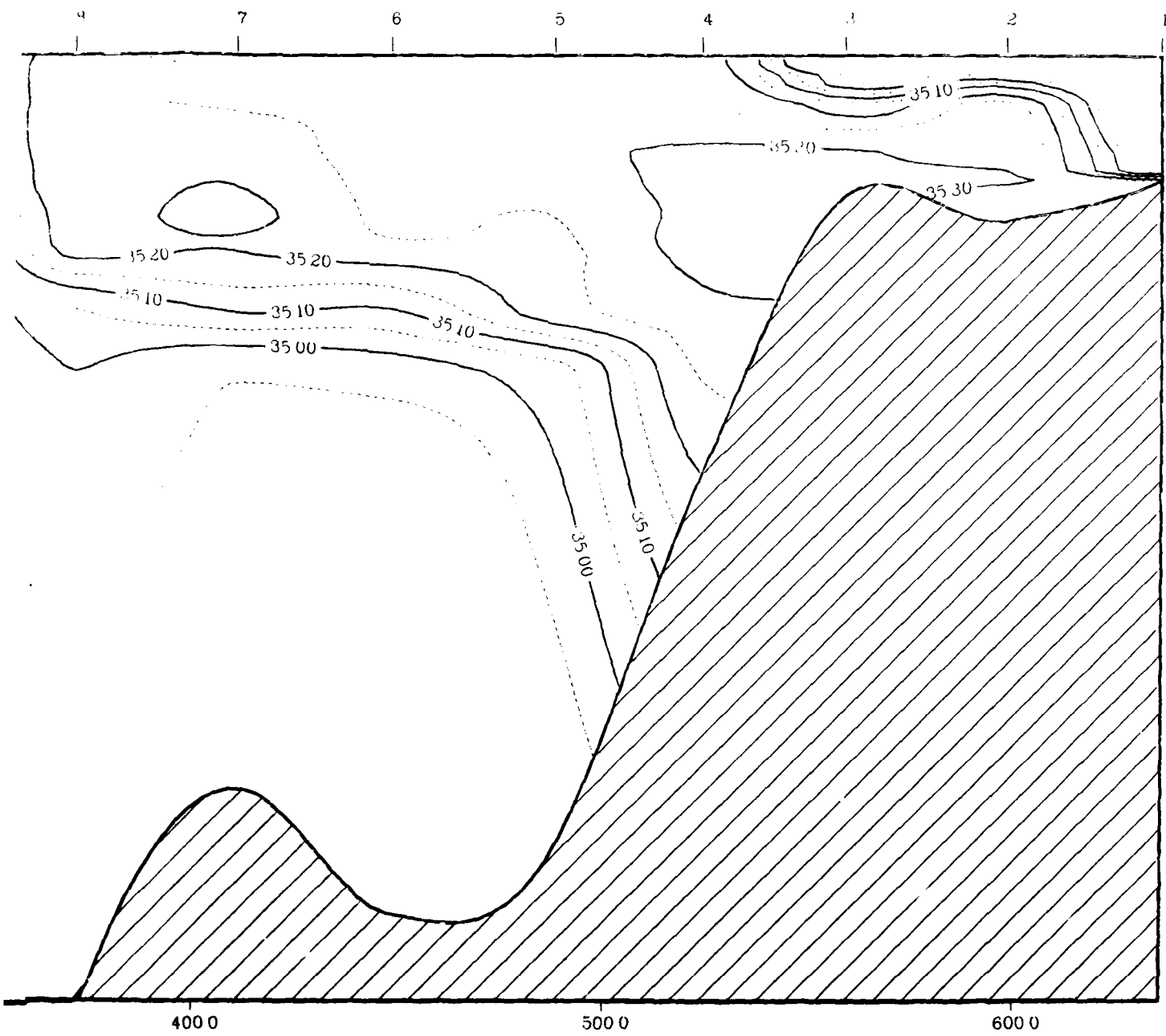
Figure 200. January 1960 salinity section.

SOGNEFJORD SECTION

FILE = ICES# 1960 DAT1

SALINITY





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ICES\$:1961.DAT

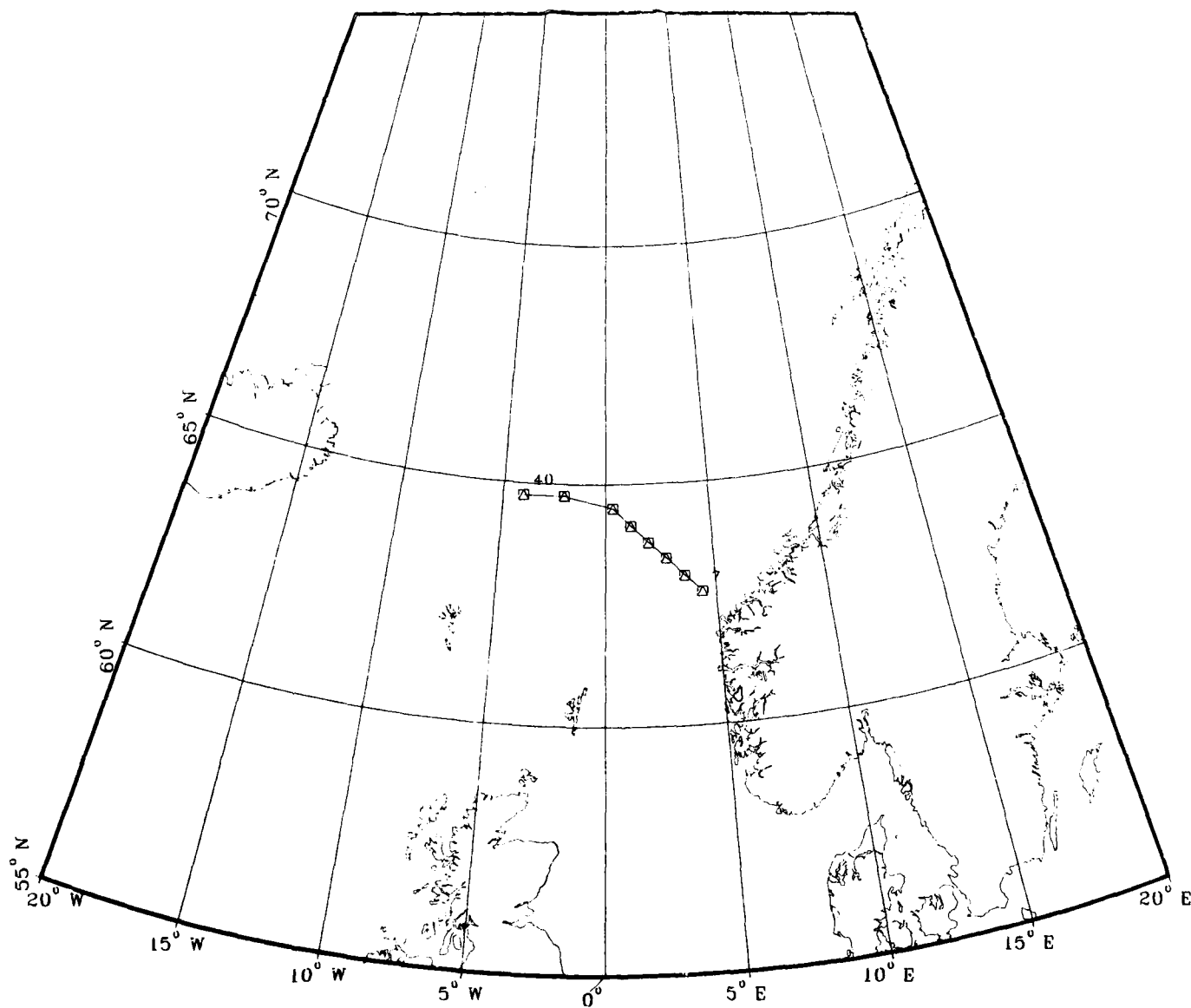


Figure 201. January 1961 station positions.

SOGNEFJORD SECTION
FILE = ICES\$.1961.DAT
T/S PLOT

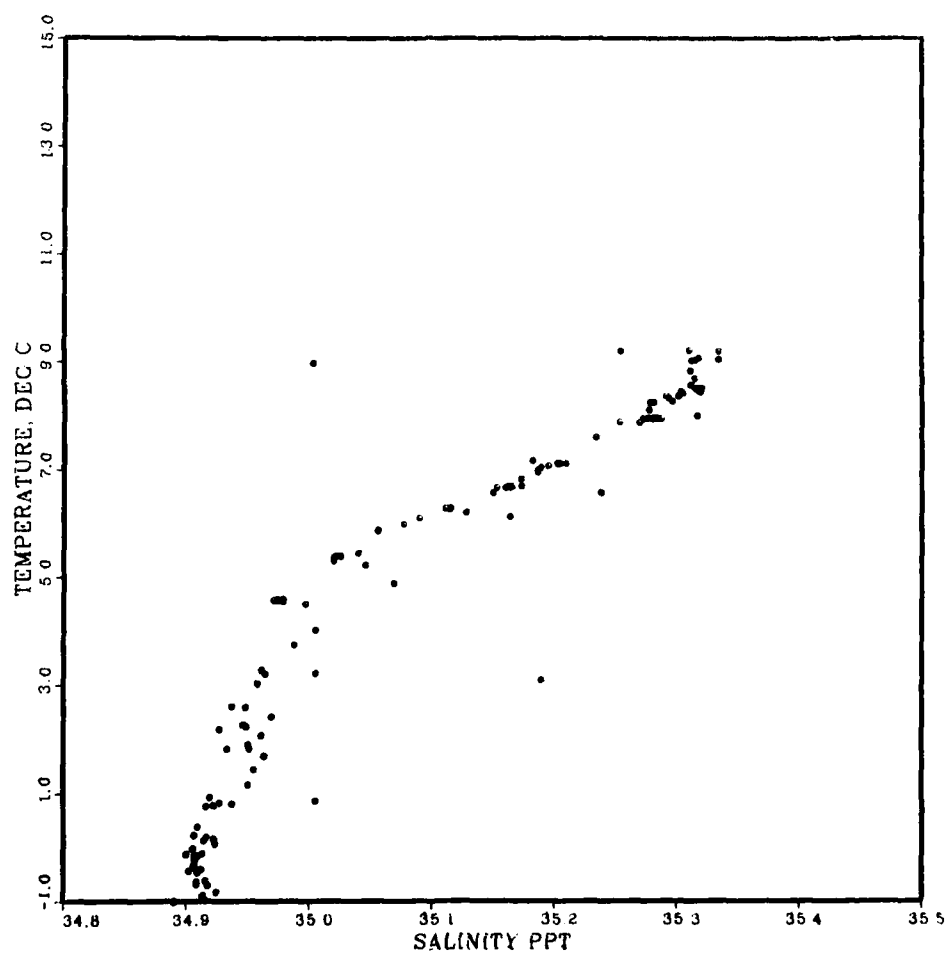


Figure 202. January 1961 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$1961.DAT1
 TEMPERATURE

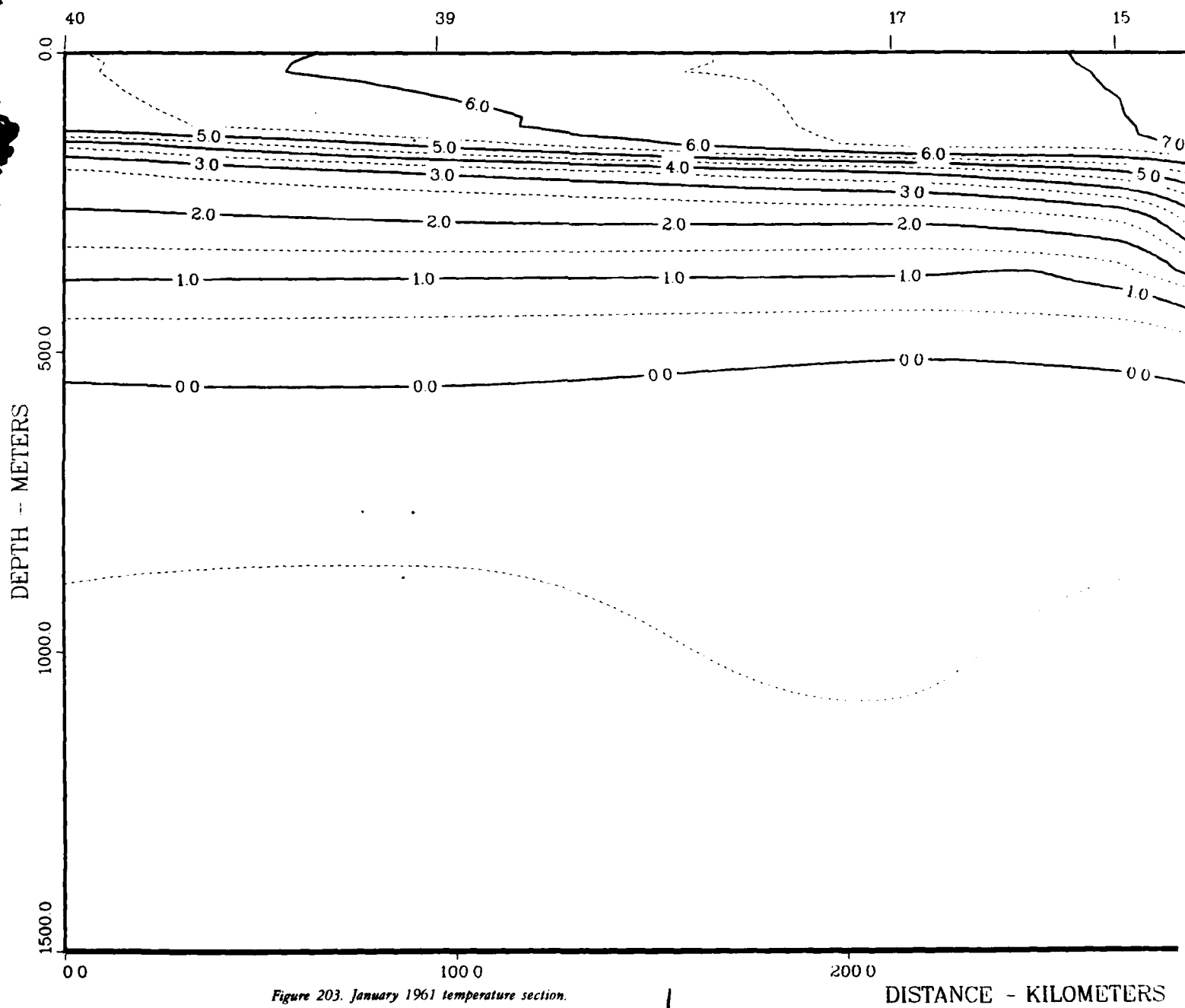
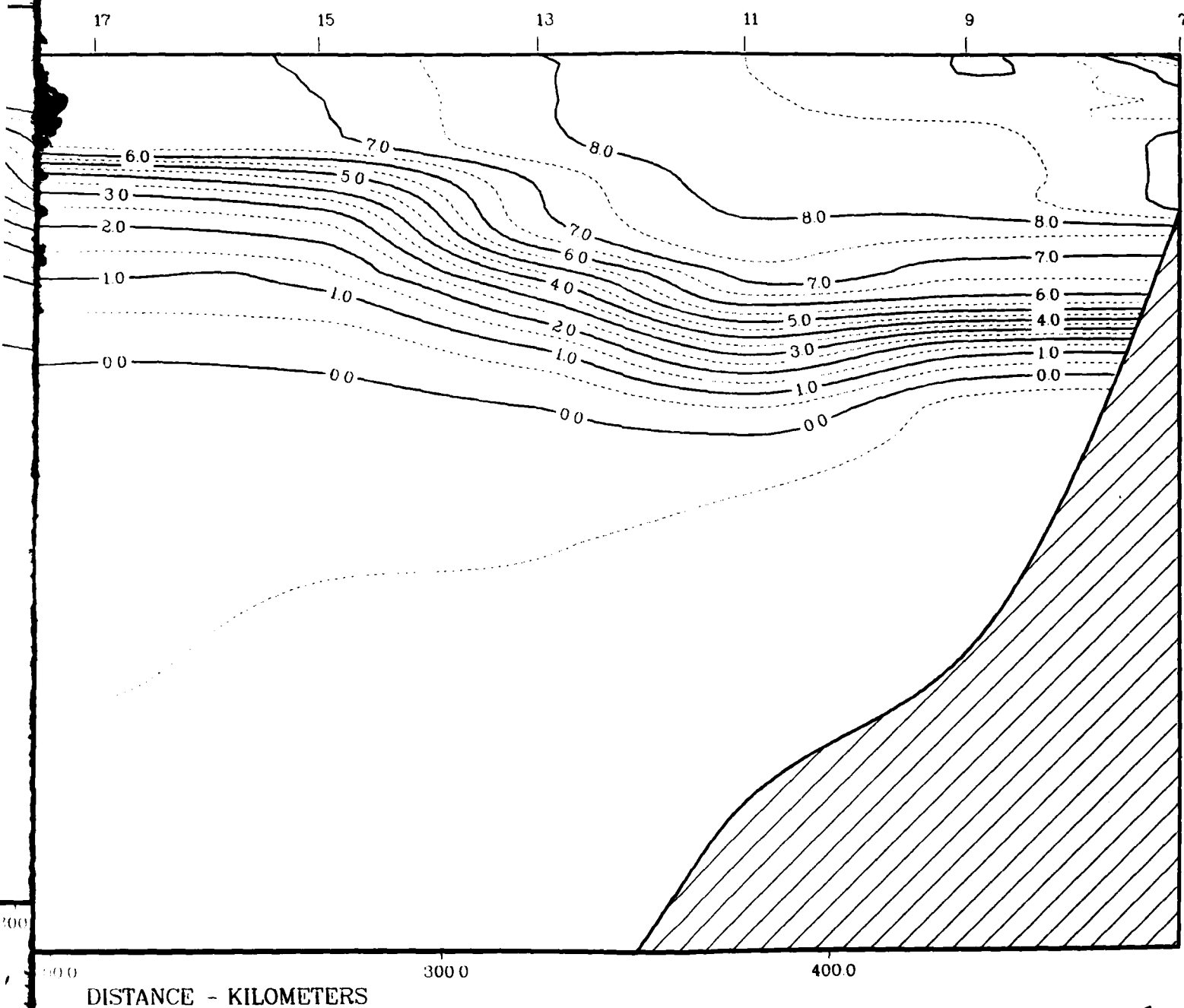


Figure 203. January 1961 temperature section.

SOGNEFJORD SECTION

FILE = ICES\$1961.DAT1

TEMPERATURE



SOGNEFJORD SECTION
FILE = ICES 1961 DAT 1
SALINITY

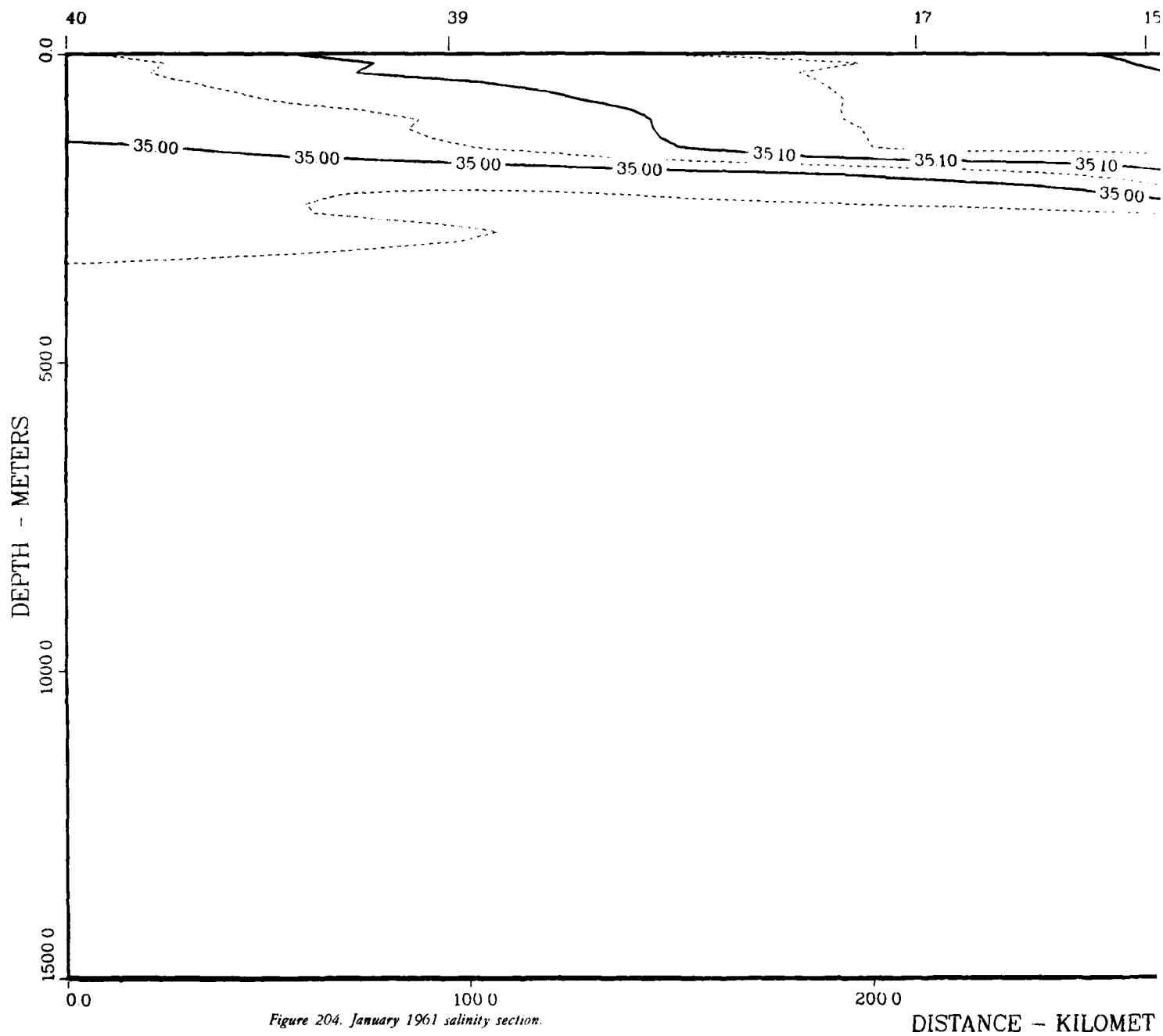
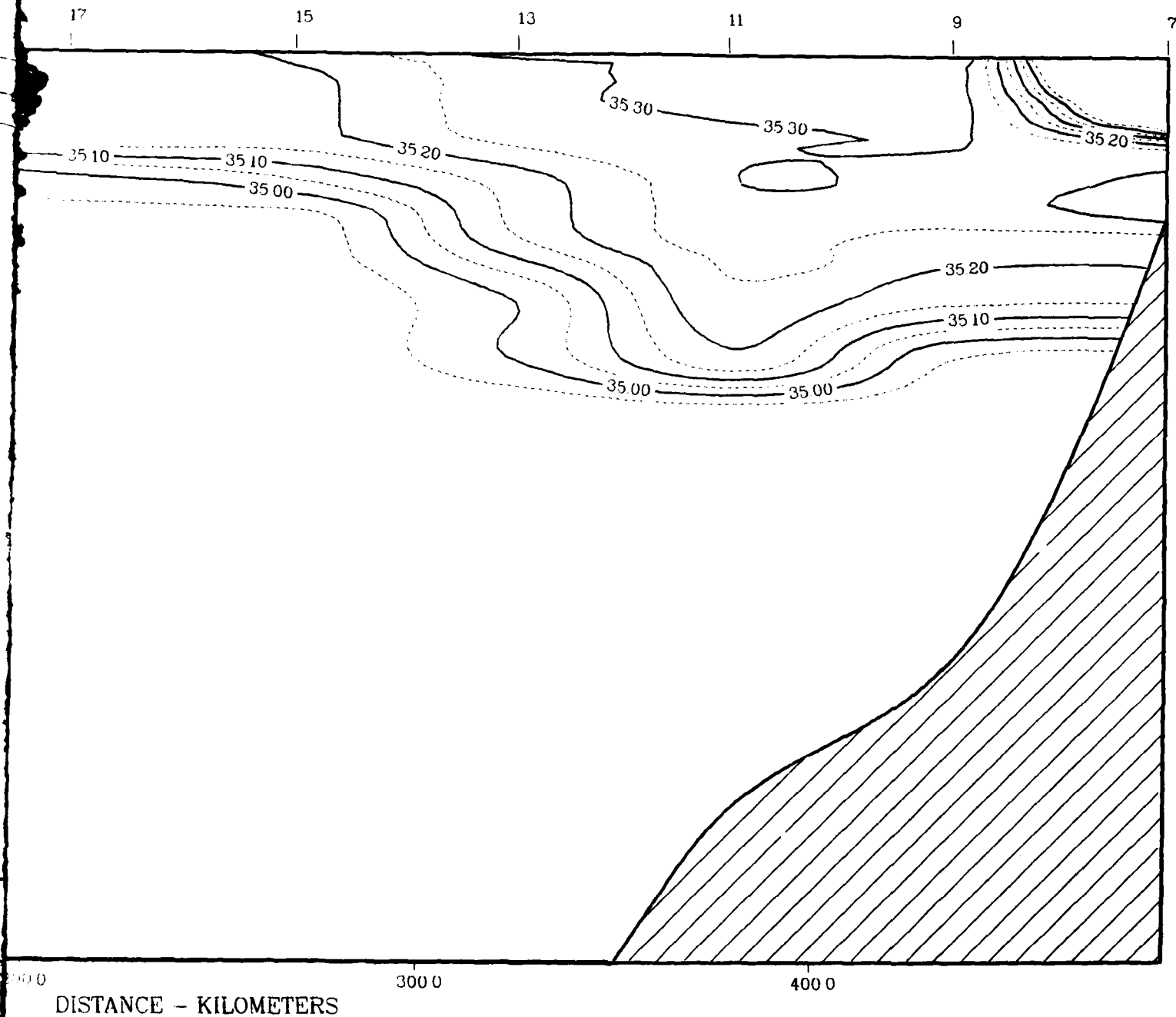


Figure 204. January 1961 salinity section.

SOGNEFJORD SECTION
FILE = ICES\$ 1961 DAT 1
SALINITY



ICES\$:1962.DAT

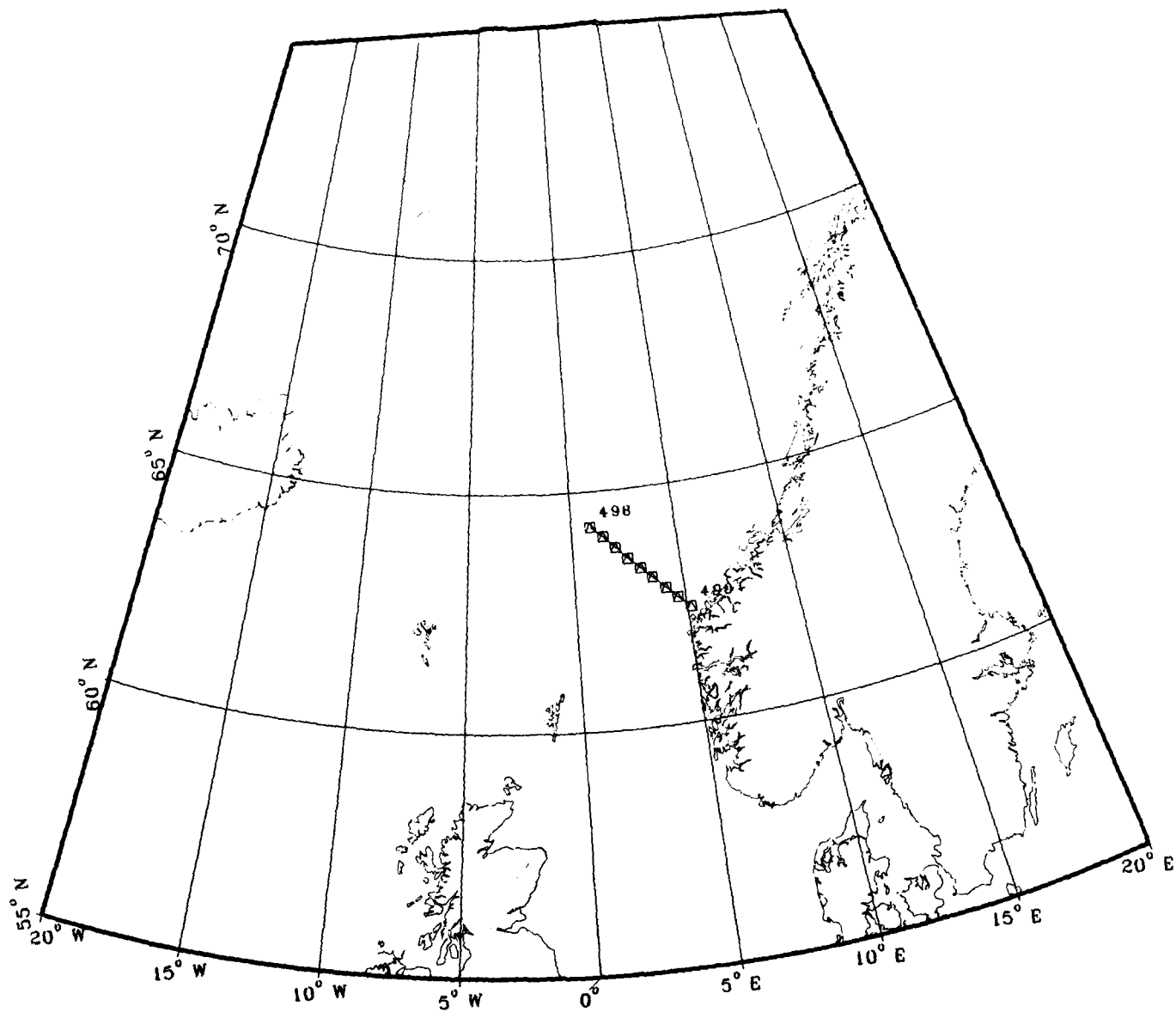


Figure 205. January 1962 station positions.

SOGNEFJORD SECTION
FILE = ICES\$1962.DAT
T/S PLOT

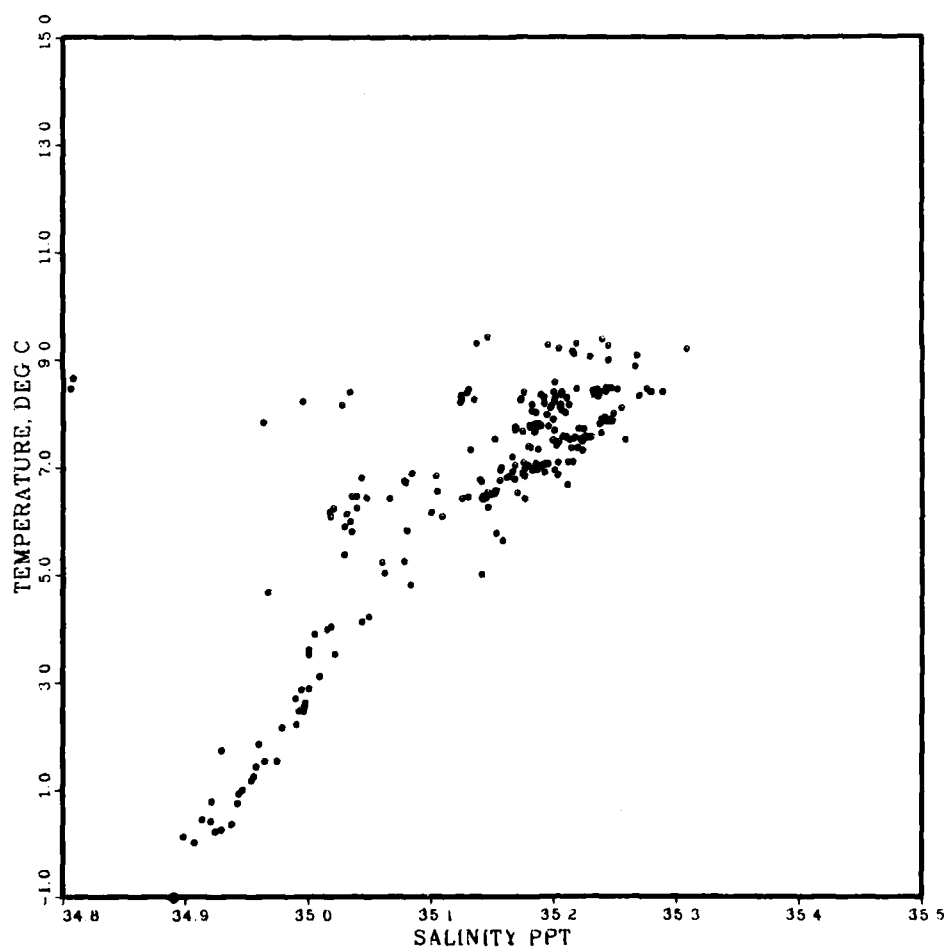


Figure 206. January 1962 temperature/salinity diagram

SOGNEFJORD SECTION
FILE: ICES 1186; DATE: 1
TEMPERATURE

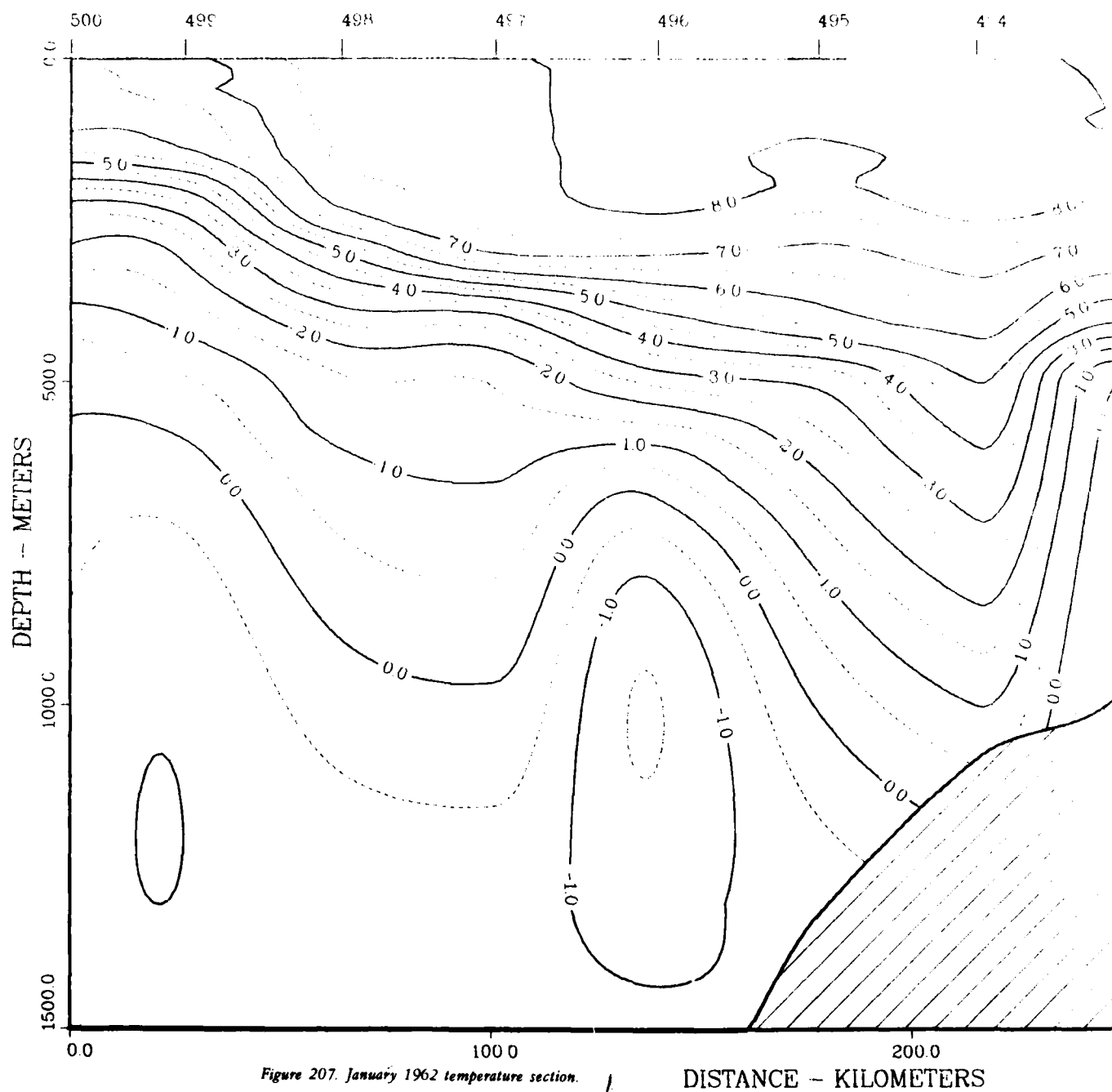
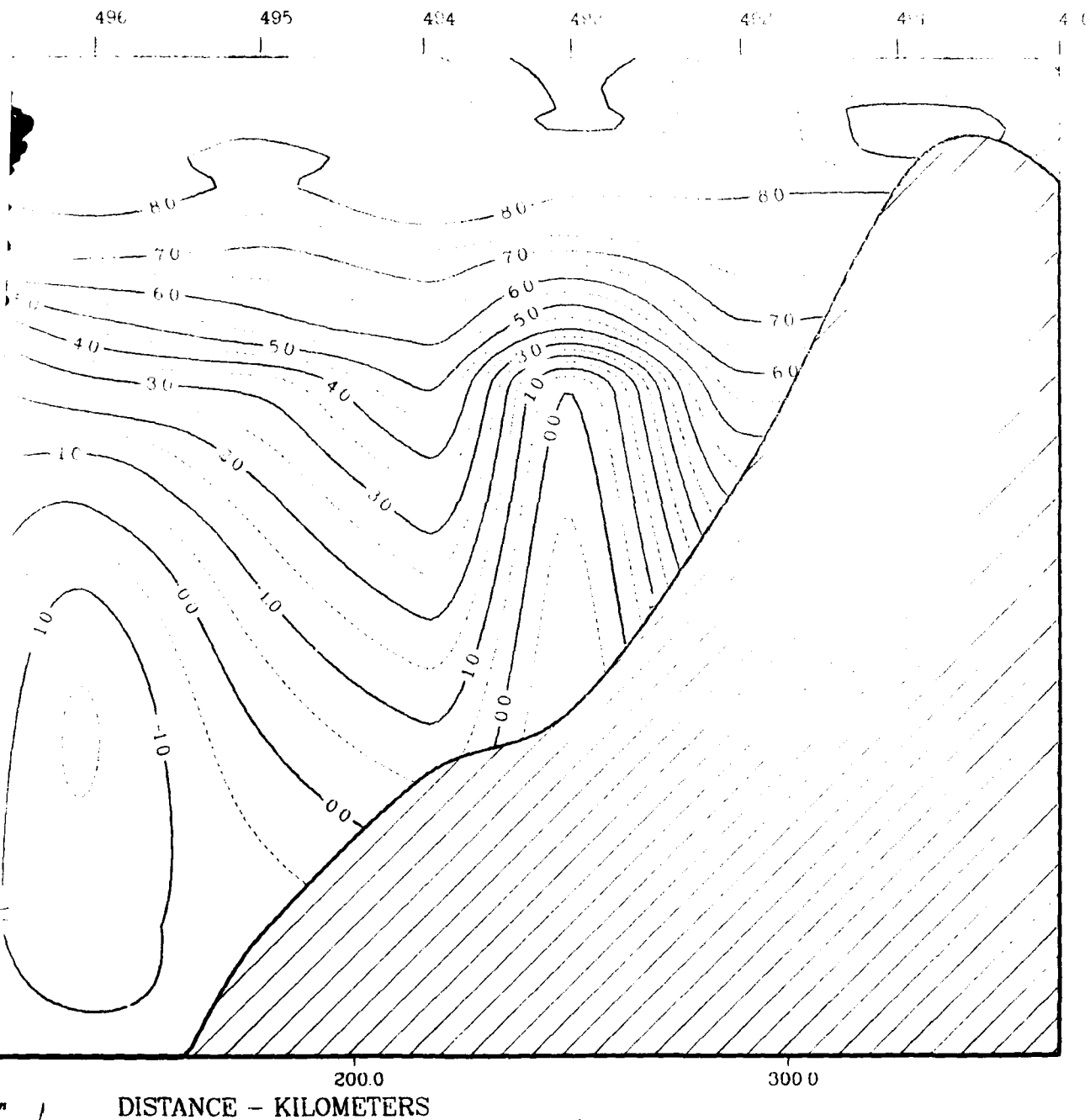


Figure 207. January 1962 temperature section.

SOGNEFJORD SECTION
FILE = ICESF 1967 DAT 1
TEMPERATURE



SOGNEFJORD SECTION

FILE = ICES\$1962.DAT1
SALINITY

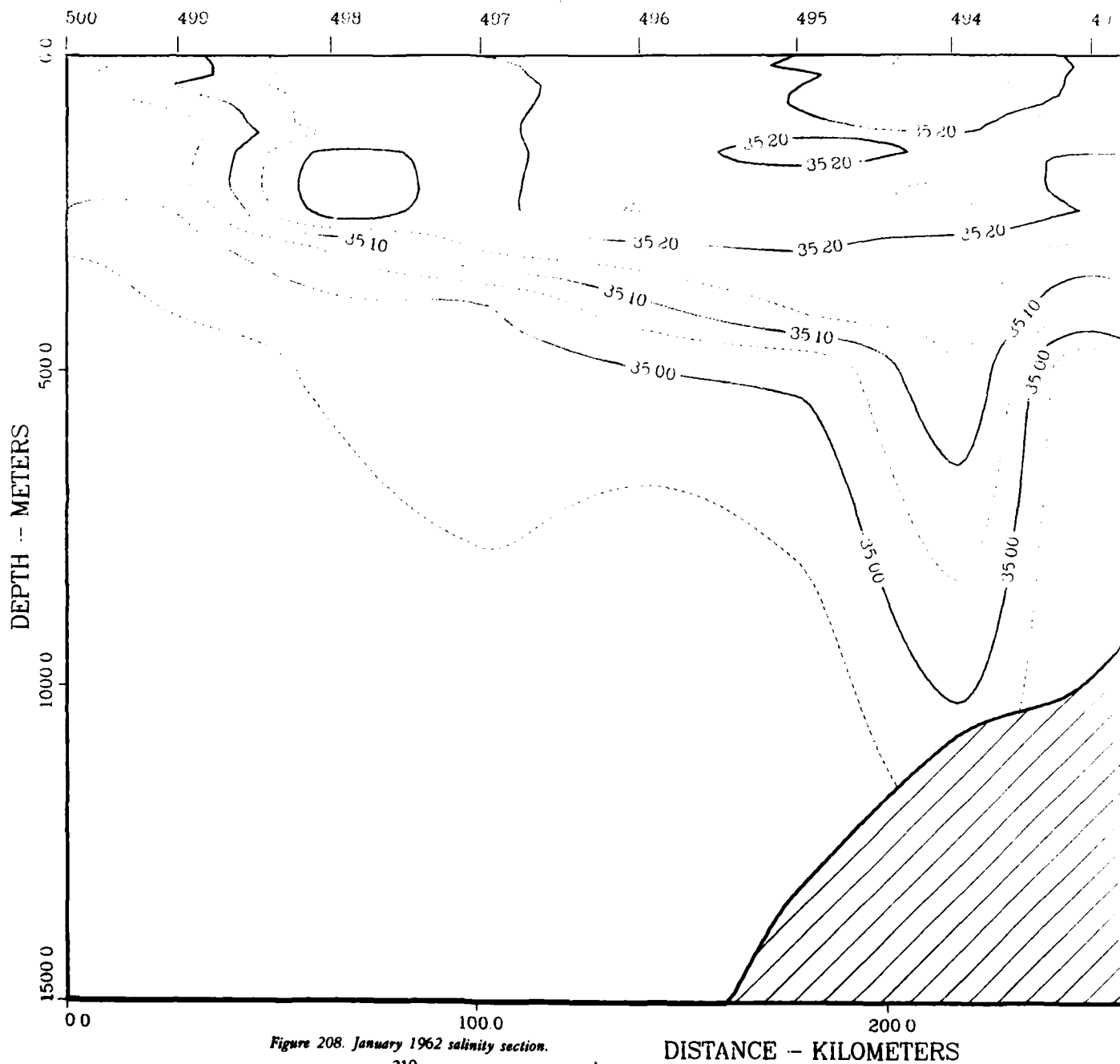
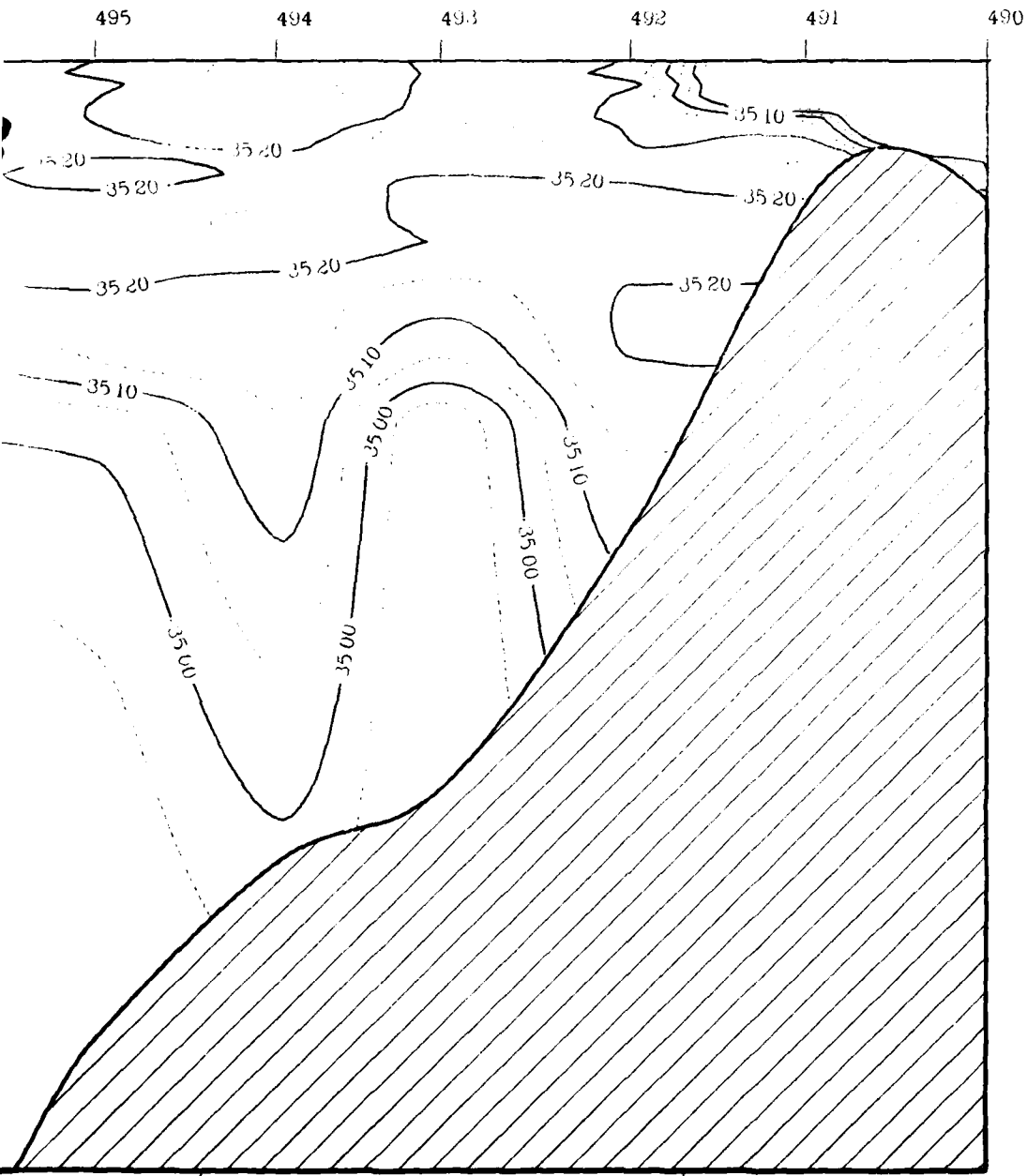


Figure 208. January 1962 salinity section.
210

DISTANCE - KILOMETERS

INEFJORD SECTION
FILE - ICES 1962 DAT 1
SALINITY



TANCE - KILOMETERS

ICES\$:1967GOS.DAT

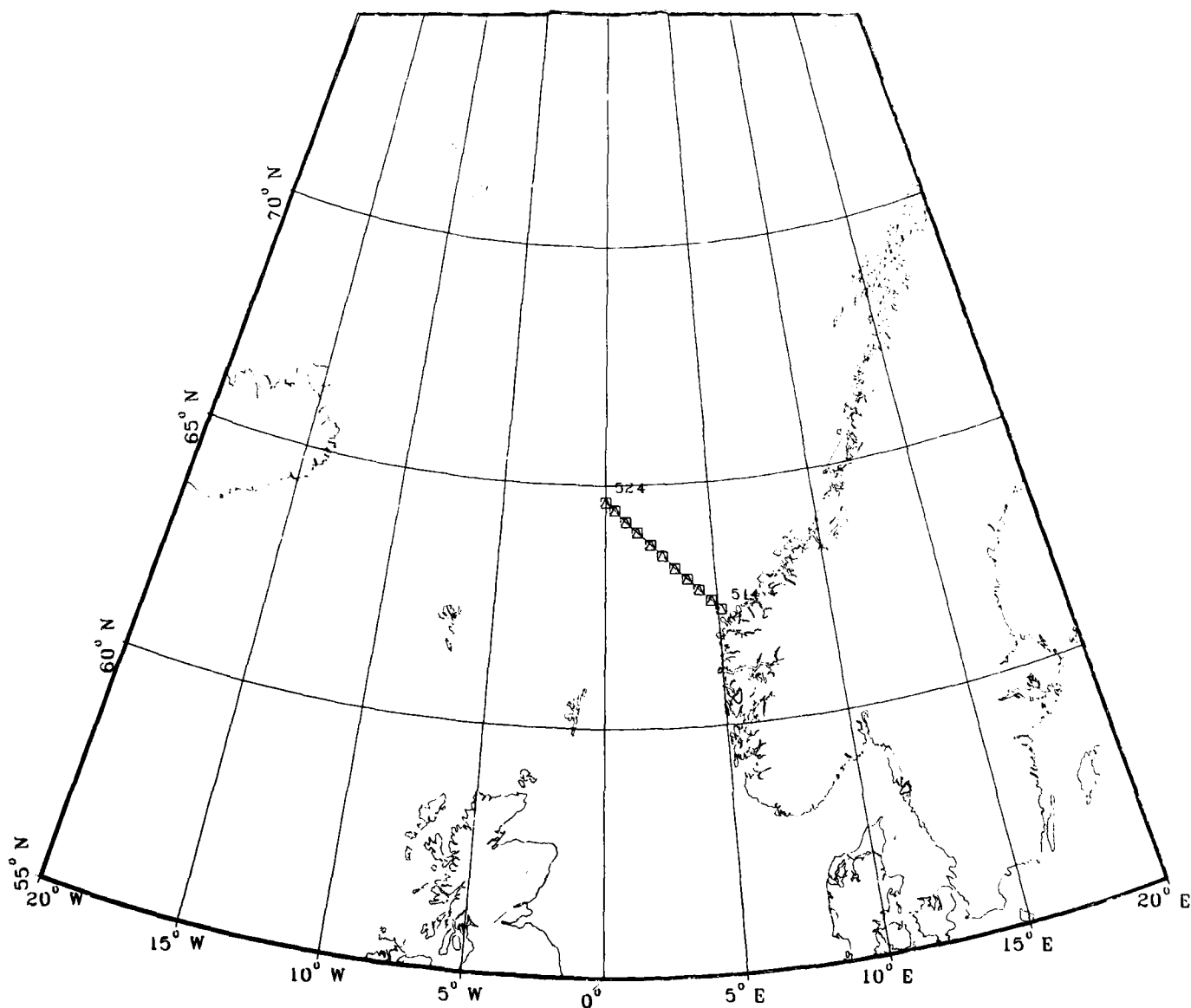


Figure 209. November 1967 (G.O. SARS) station positions.

SOGNEFJORD SECTION
FILE = ICES\$1967GOS.DAT
T/S PLOT

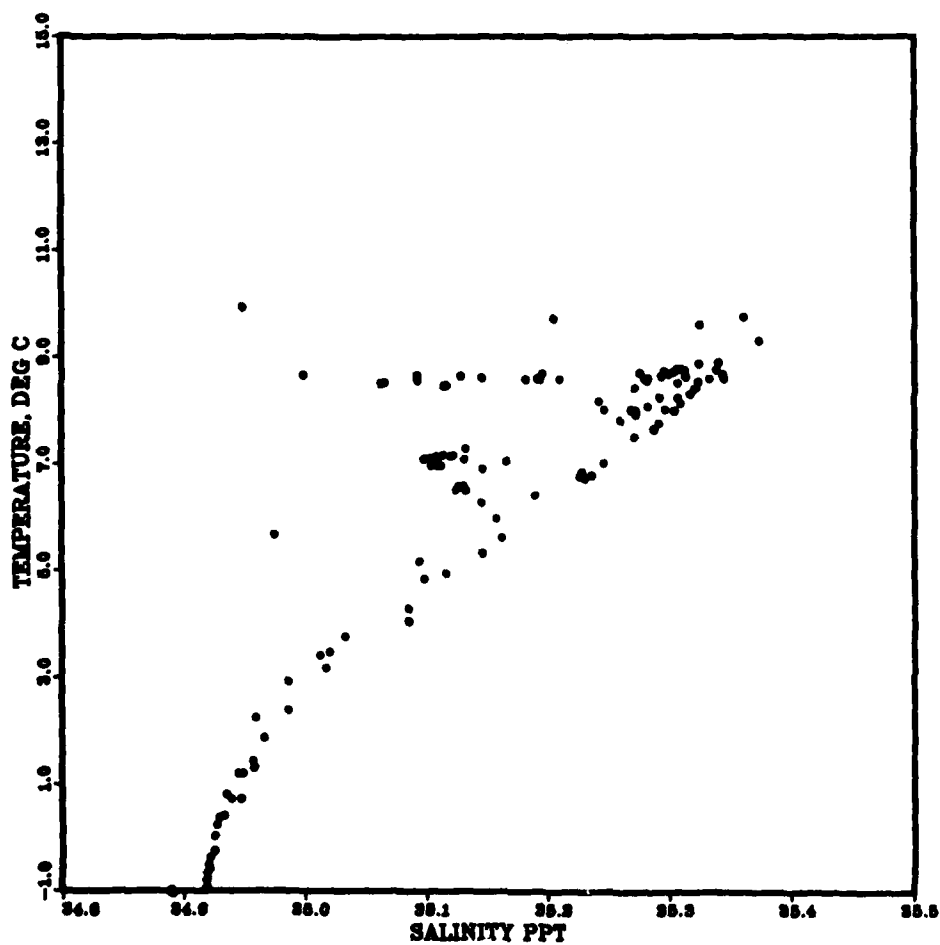


Figure 210. November 1967 (G.U. SARS) temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE - ICES8:1967GOS.DAT
 TEMPERATURE

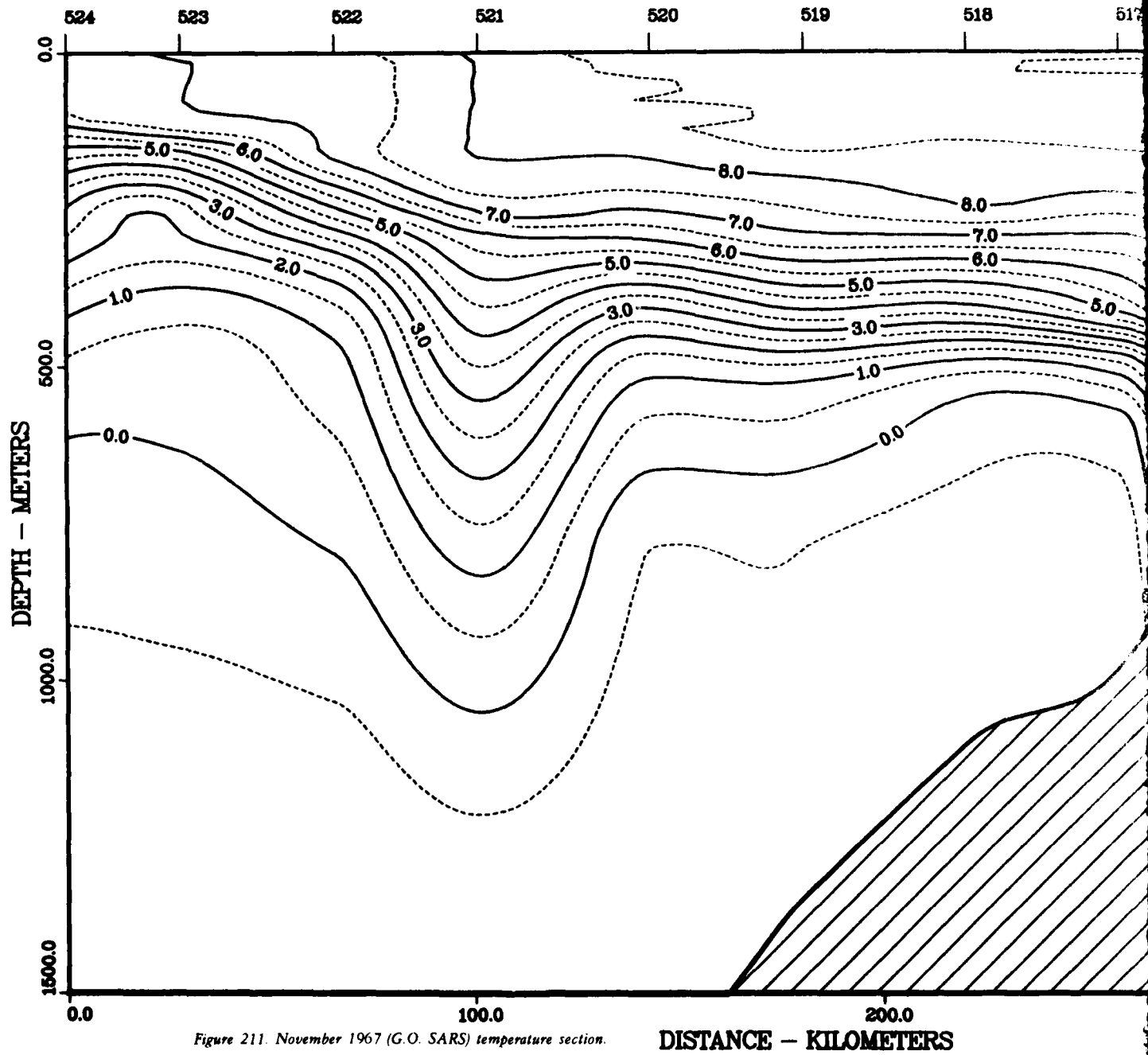
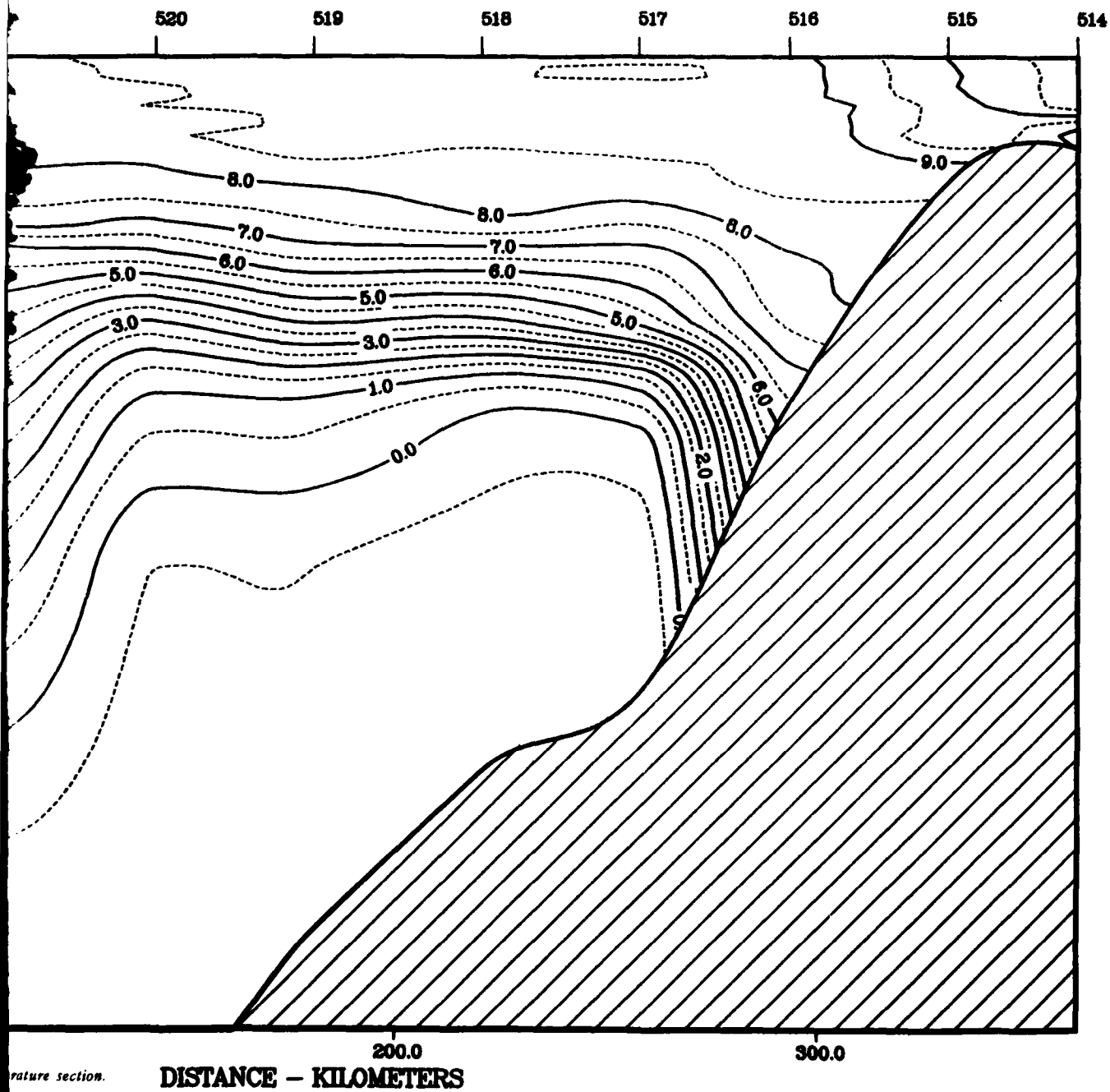


Figure 211. November 1967 (G.O. SARS) temperature section.

SOGNEFJORD SECTION
FILE - ICES81987GOS.DAT
TEMPERATURE



SOGNEFJORD SECTION
FILE - ICES1967G08.DAT
SALINITY

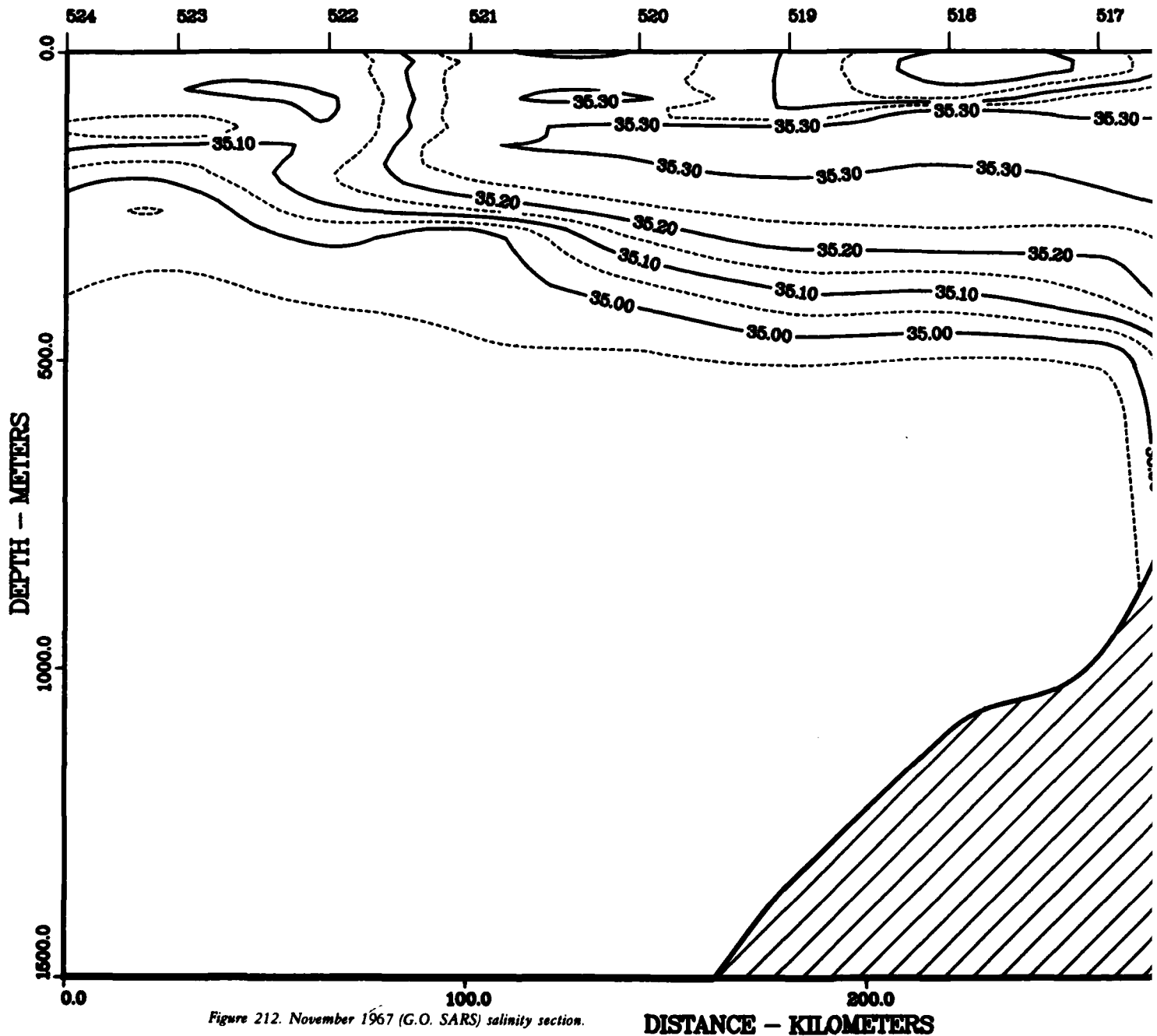
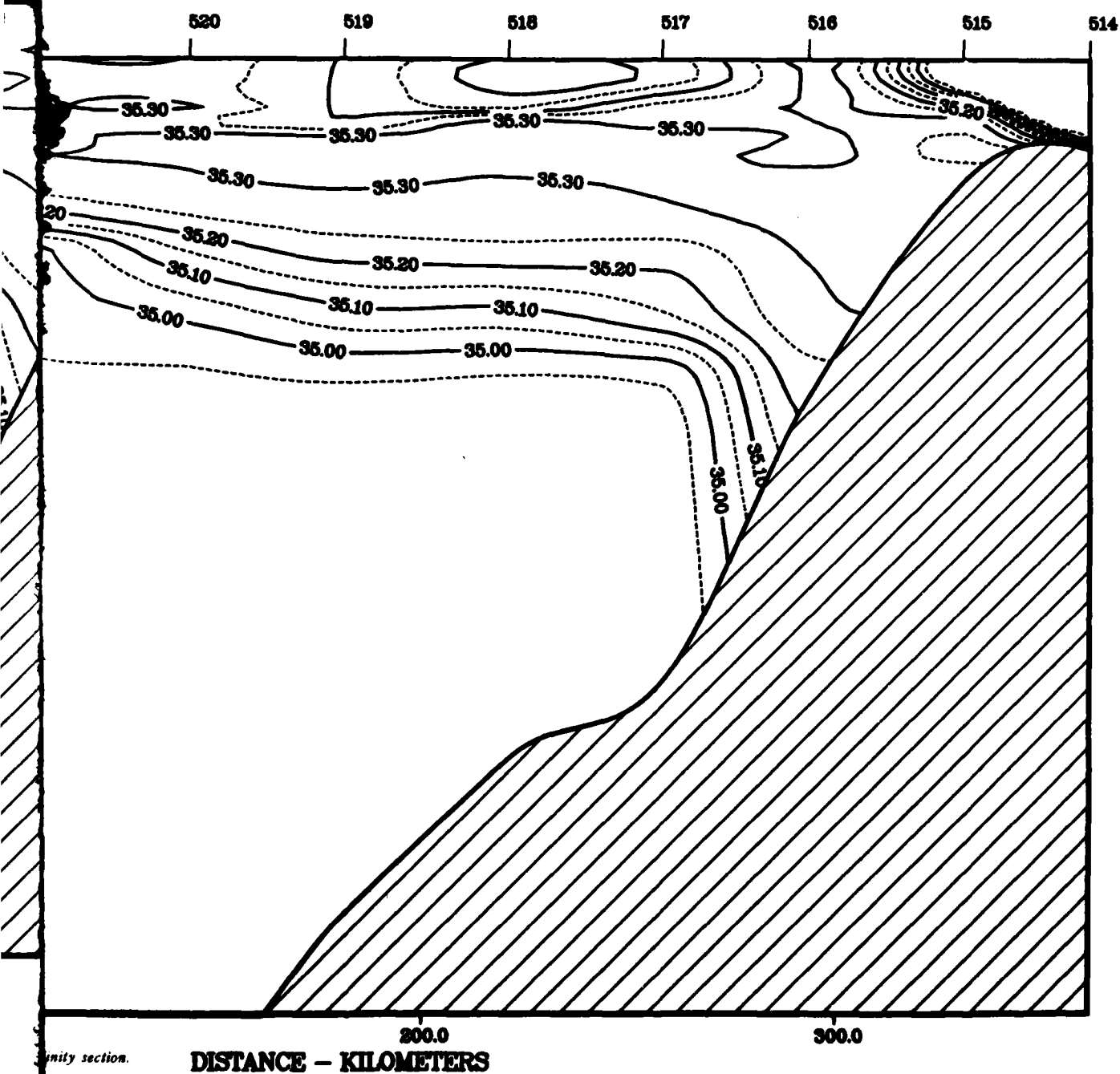


Figure 212. November 1967 (G.O. SARS) salinity section.

SOGNEFJORD SECTION
FILE - ICES41967GOS.DAT
SALINITY



2

ICES\$:1967JH.DAT

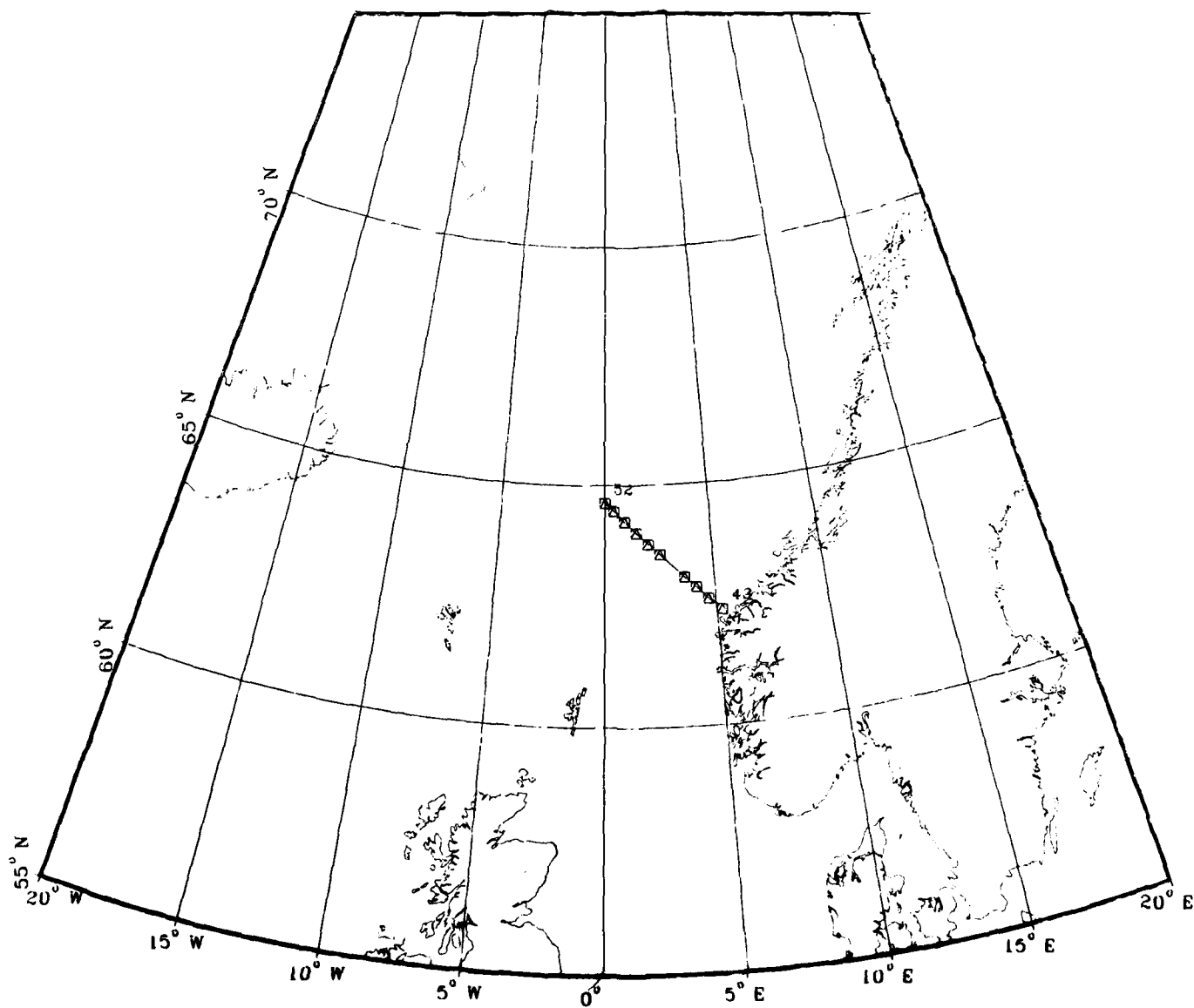


Figure 213. November 1967 (J. HJORT) station positions.

SOGNEFJORD SECTION
FILE = ICES\$:1967JH.DAT
T/S PLOT

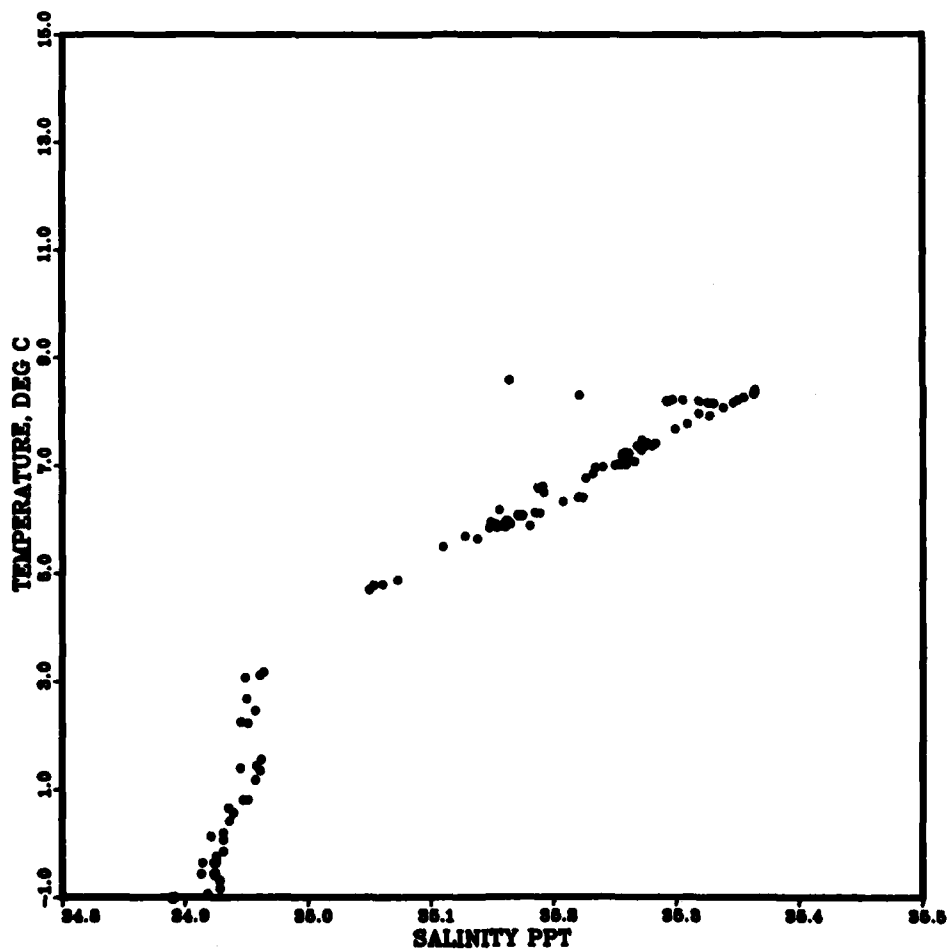
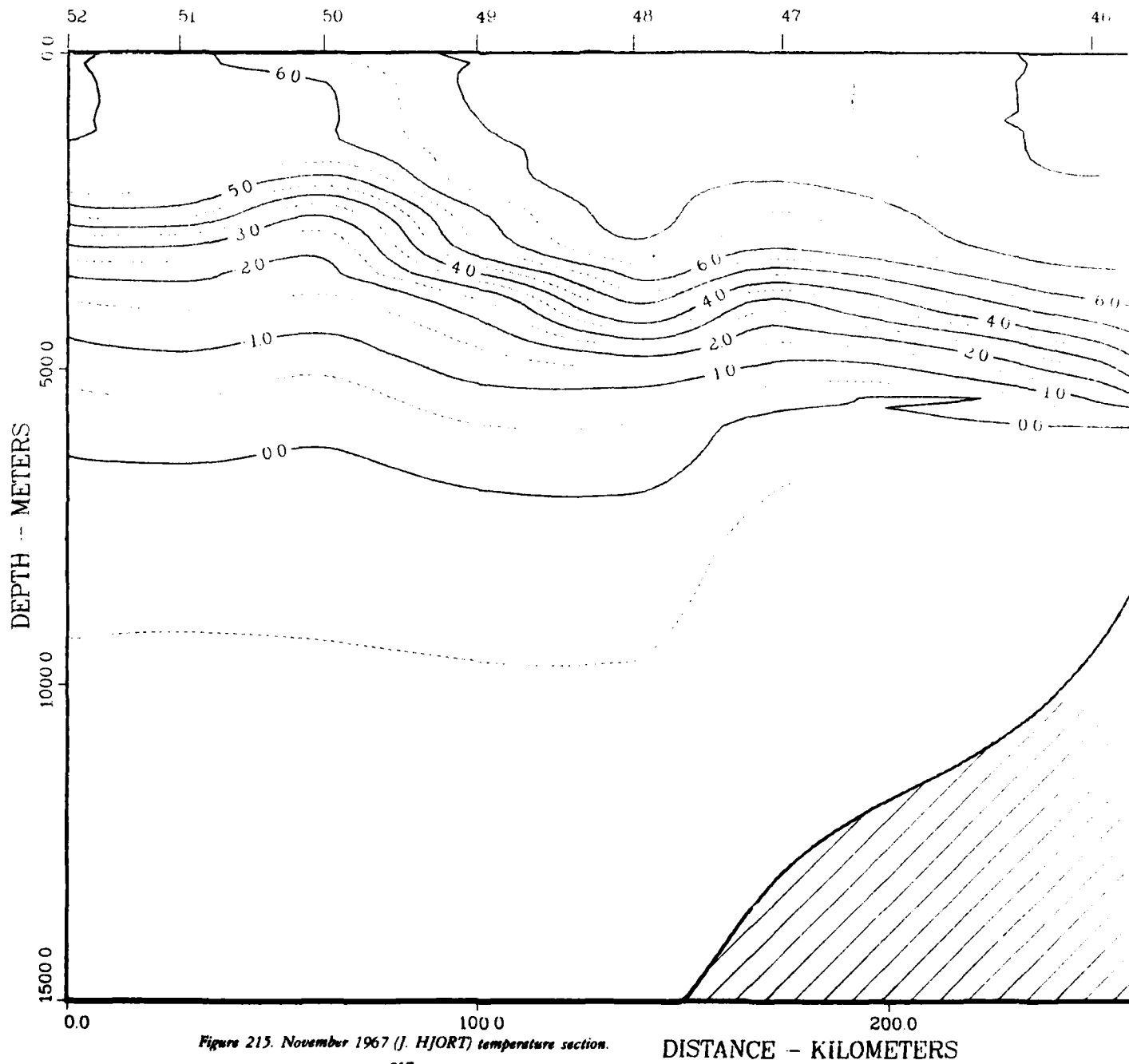
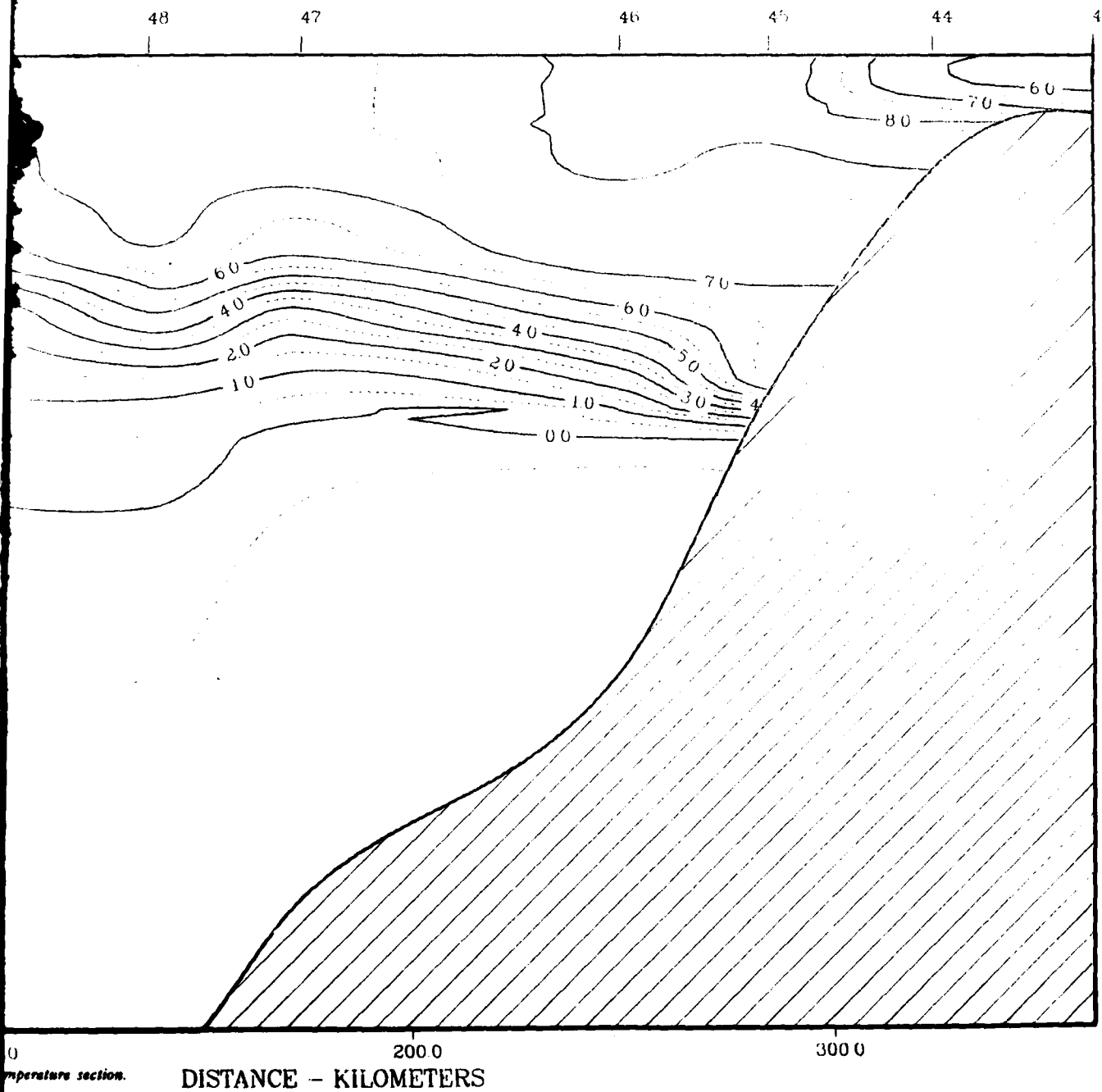


Figure 214. November 1967 (J. HJORT) temperature/salinity diagram.

SOGNEFJORD SECTION
FILE = ICES 1967JH DAT 1
TEMPERATURE



SOGNEFJORD SECTION
FILE = ICES-1967JH DAT 1
TEMPERATURE



Temperature section.

DISTANCE - KILOMETERS

1

2

SOGNEFJORD SECTION
FILE - ICENT 1967JH DAT 1
SALINITY

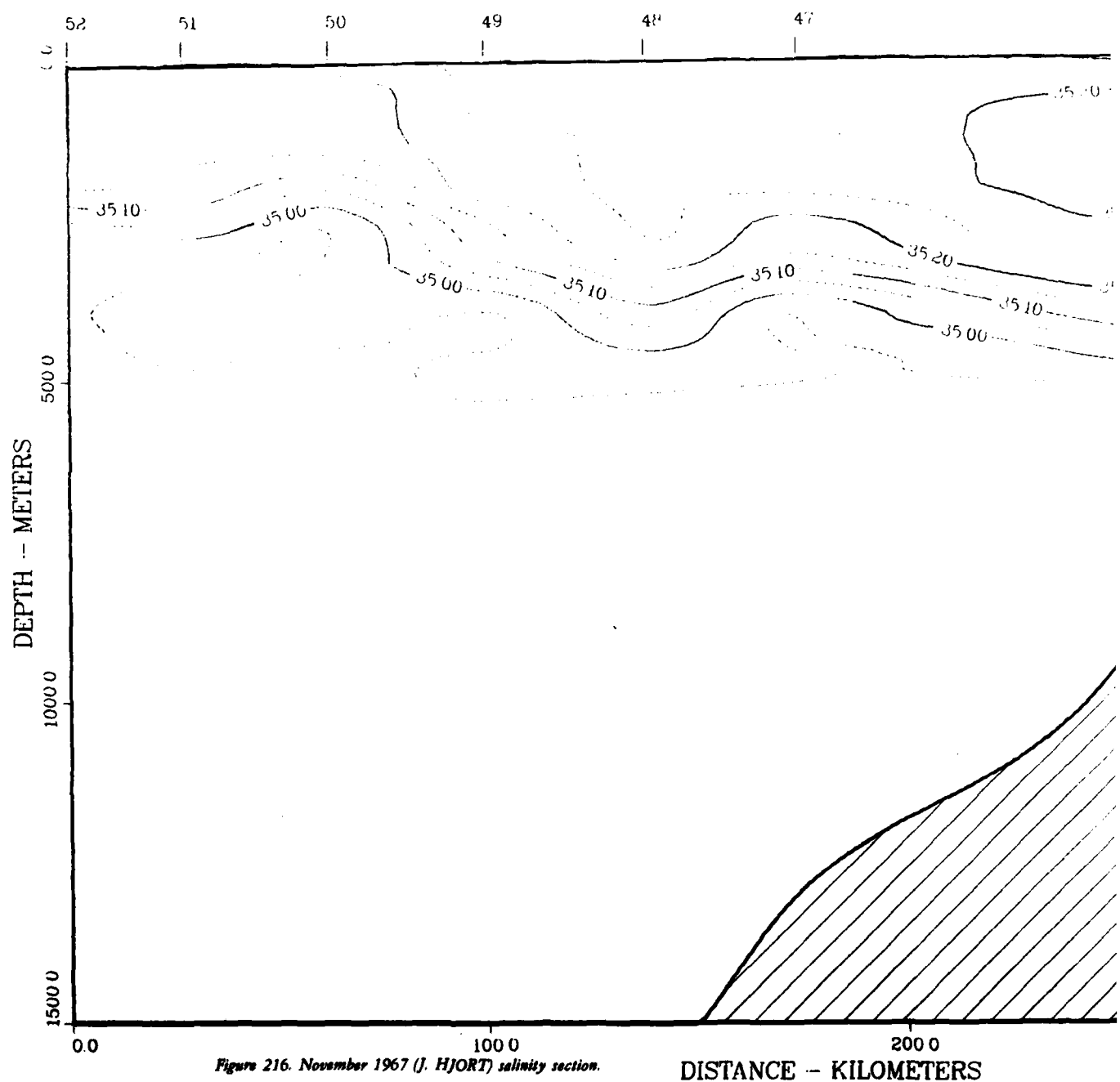
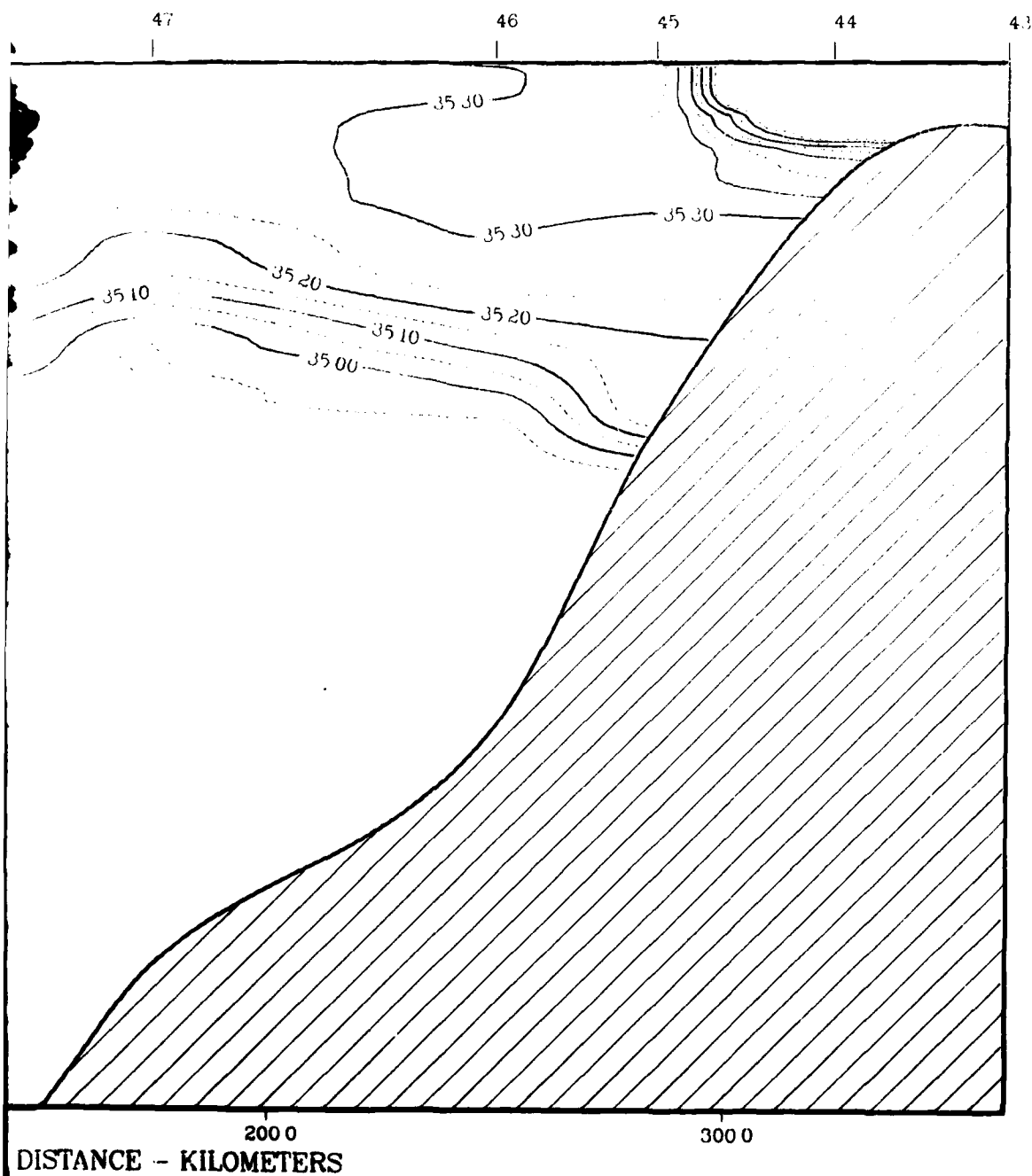


Figure 216. November 1967 (J. HJORT) salinity section.

SOGNEFJORD SECTION

FILE # ICES 1967JH DAT 1

SALINITY



1

2

ICES\$:1970JH.DAT

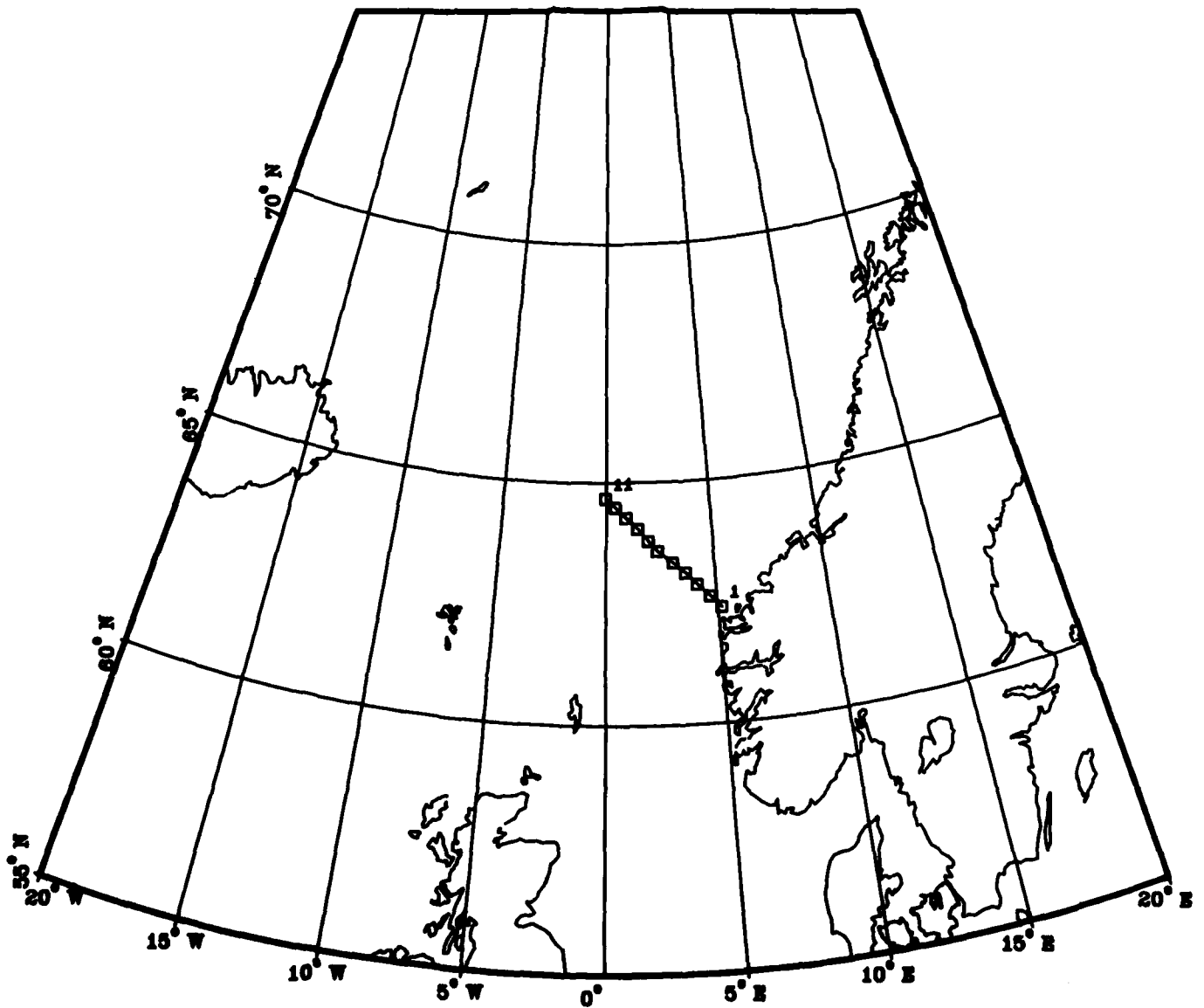


Figure 217. January 1970 station positions.

SOGNEFJORD SECTION
FILE = ICES1:1970JH.DAT
T/S PLOT

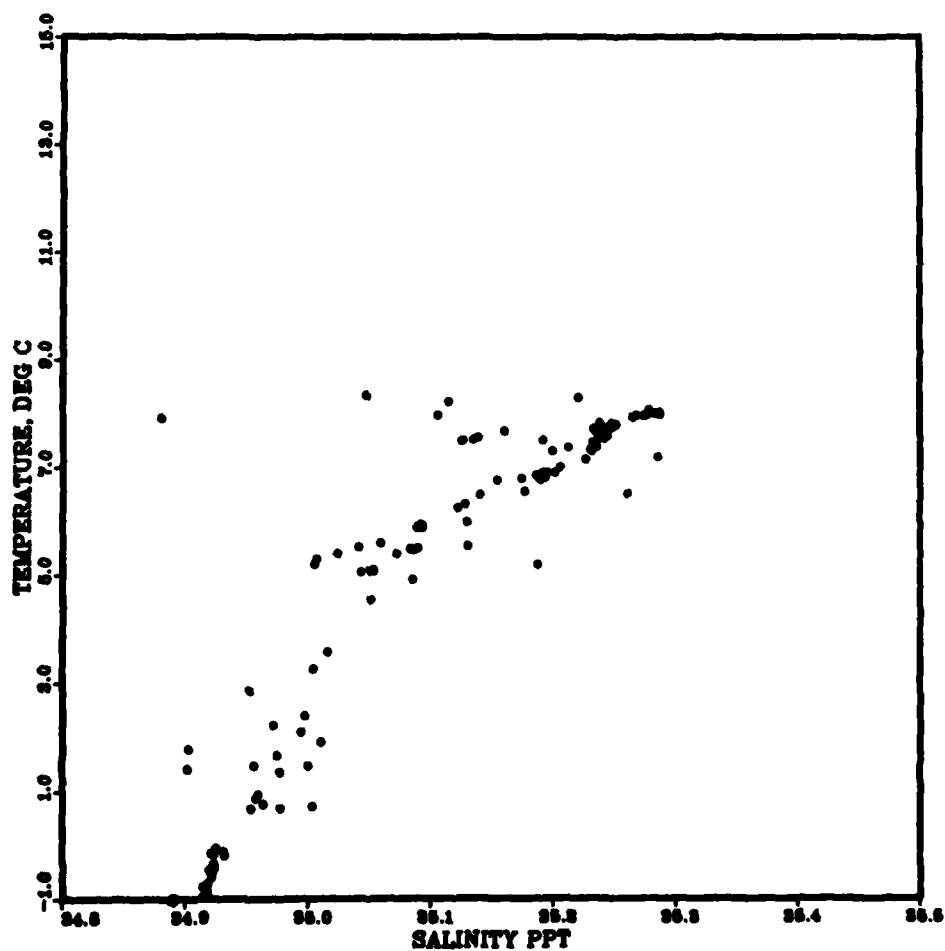


Figure 218. January 1970 temperature/salinity diagram.

SOGNEFJORD SECTION
 FILE = ICES\$ 1970JH DAT 1
 TEMPERATURE

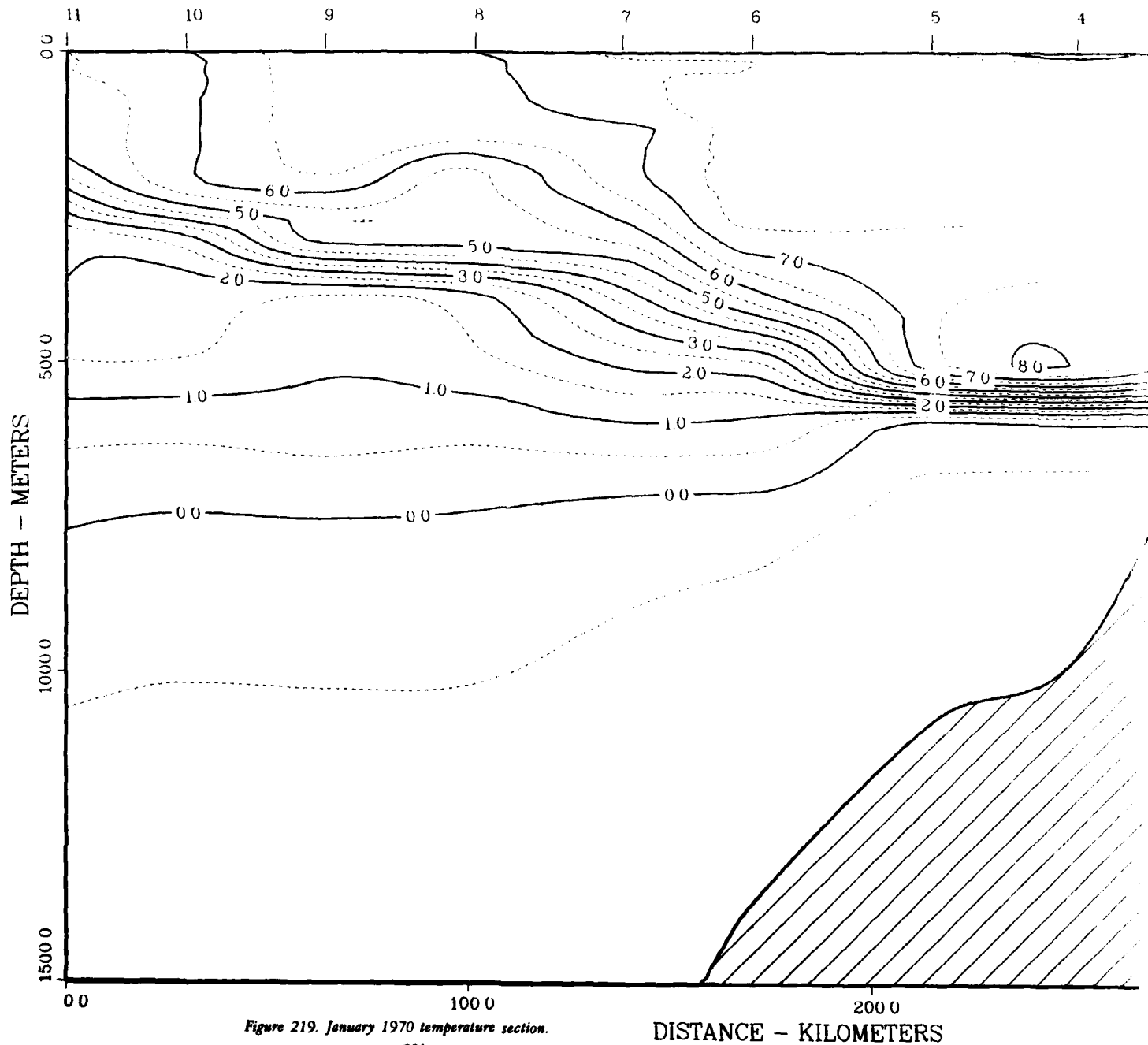
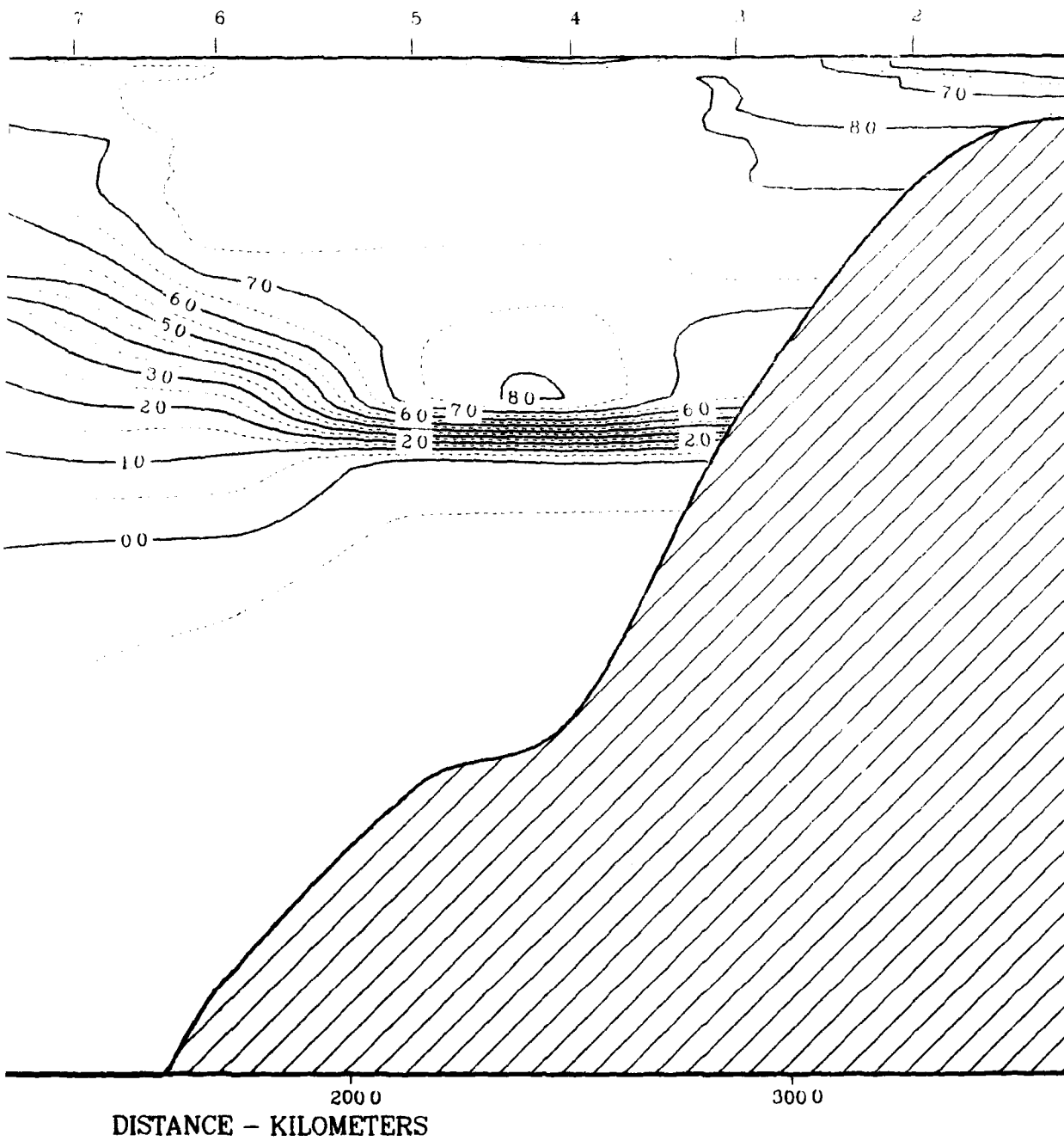


Figure 219. January 1970 temperature section.

SOGNEFJORD SECTION

FILE - ICES 1970JH DAT 1
TEMPERATURE



2

SOGNEFJORD SECTION
FILE = ICES 1970JH DAT 1
SALINITY

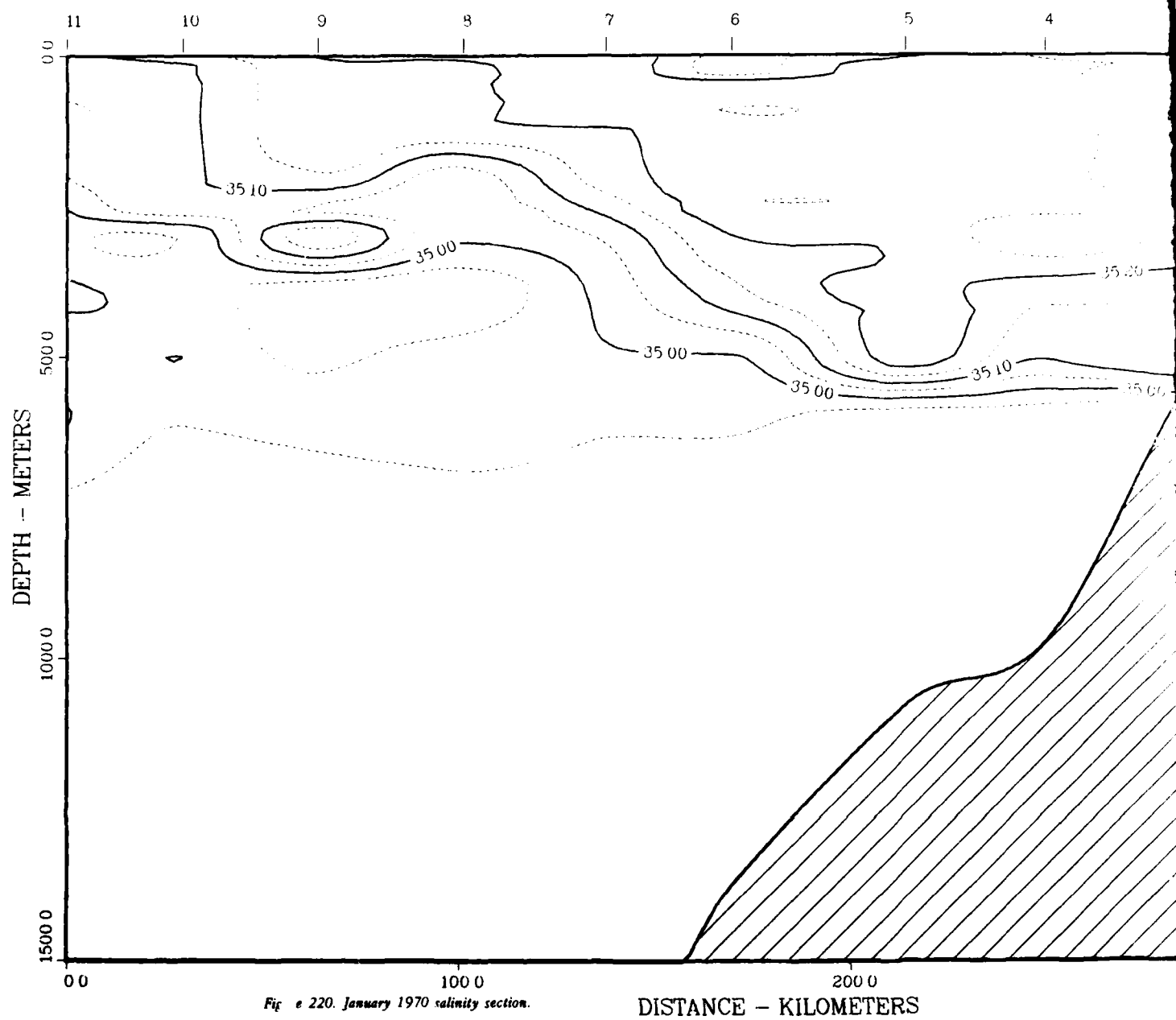


Fig. e 220. January 1970 salinity section.
222

DISTANCE - KILOMETERS

SOGNEFJORD SECTION

FILE = ICES 1970JH.DAT 1
SALINITY



END

DATE
FILMED

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